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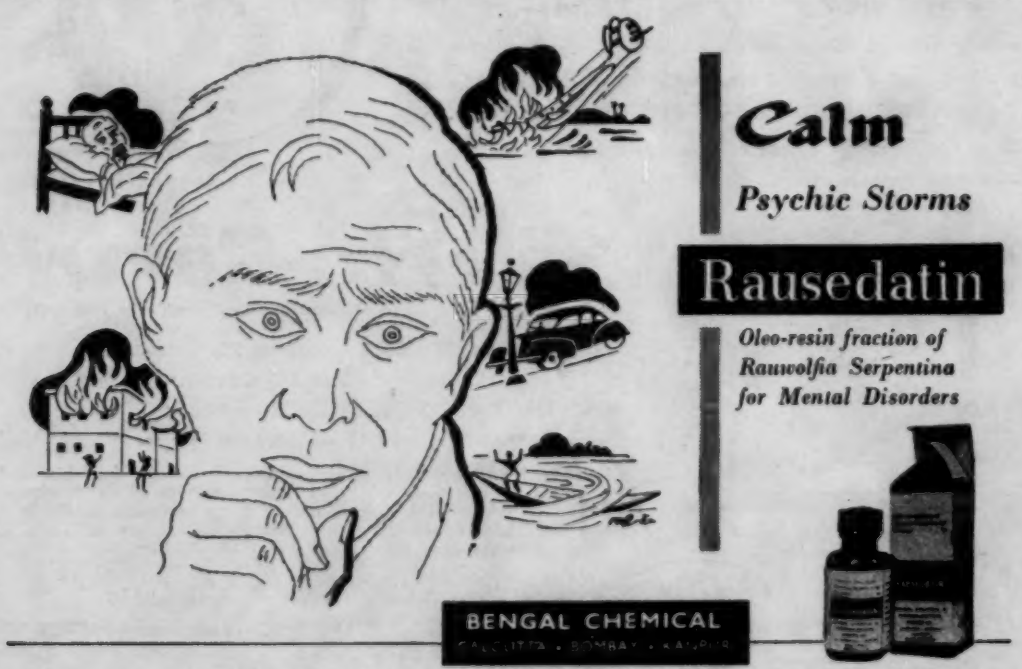

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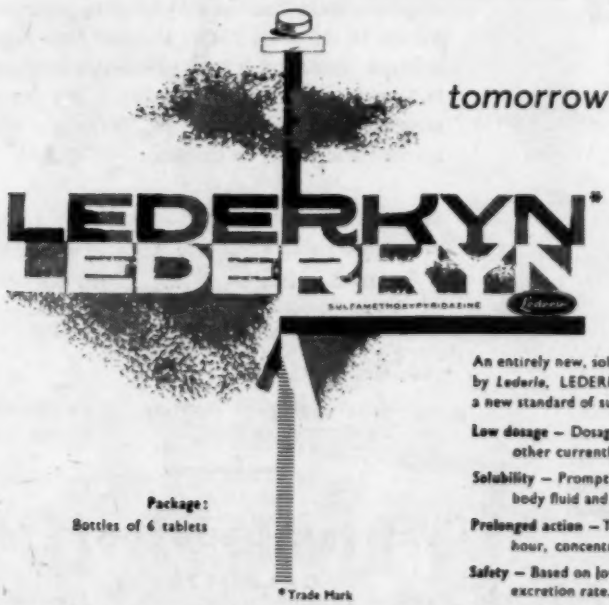

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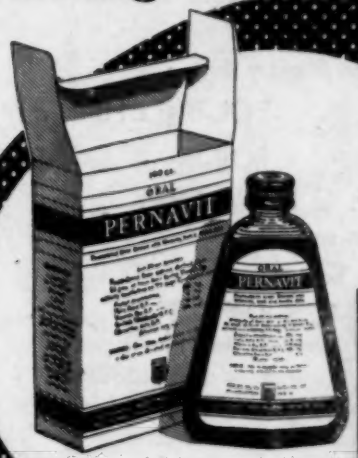

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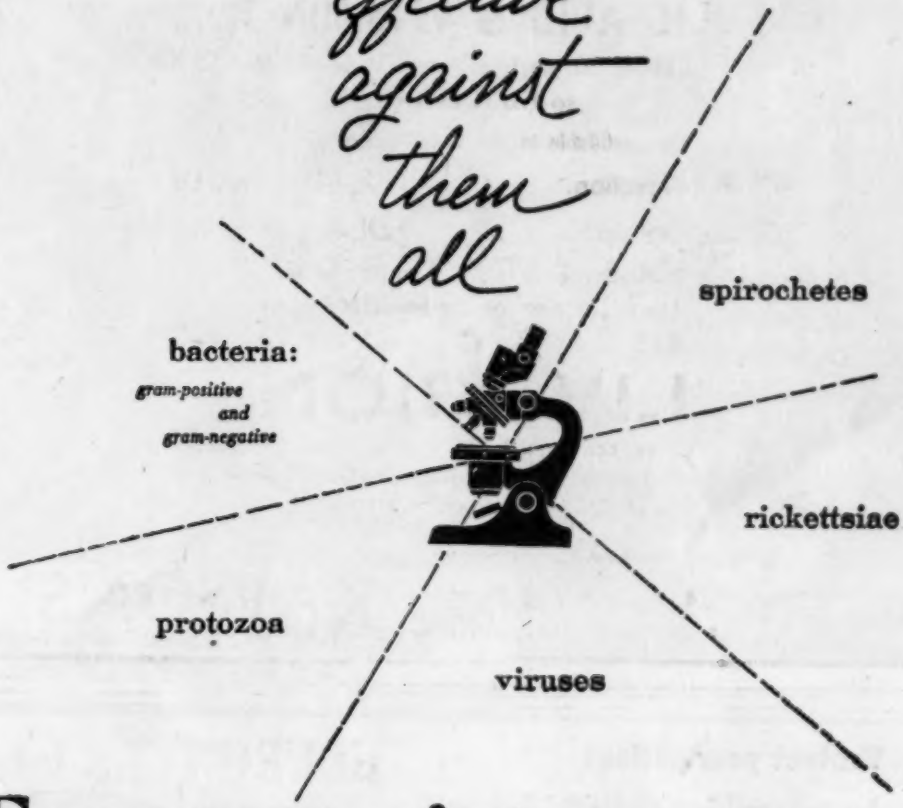

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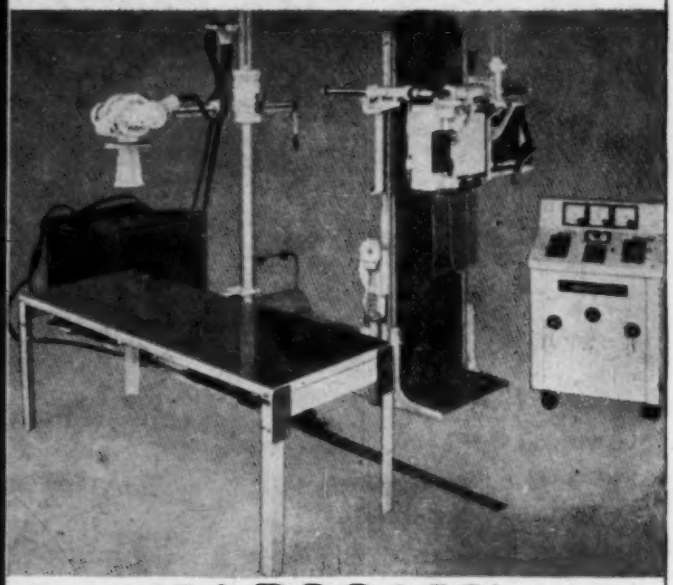

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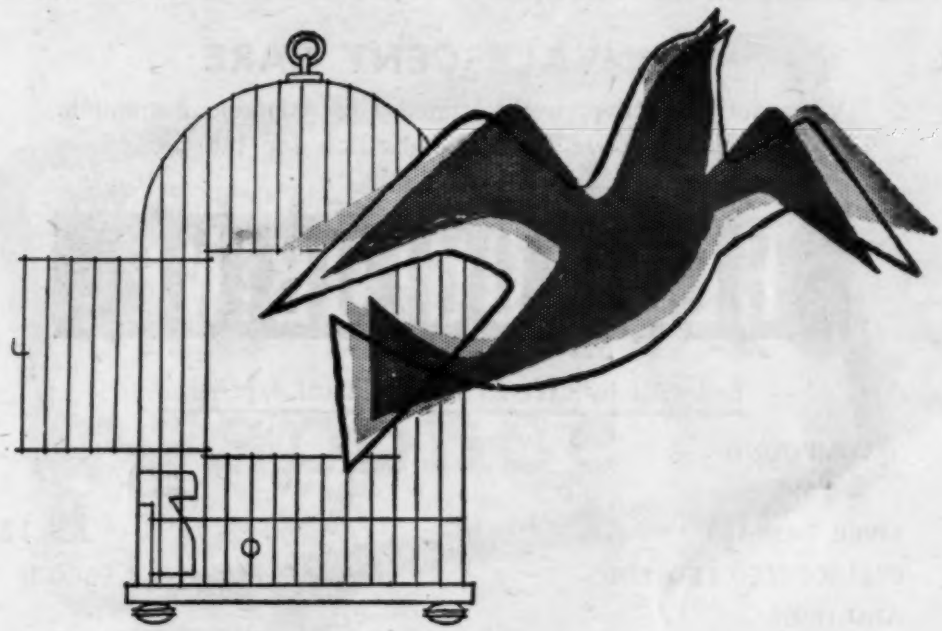

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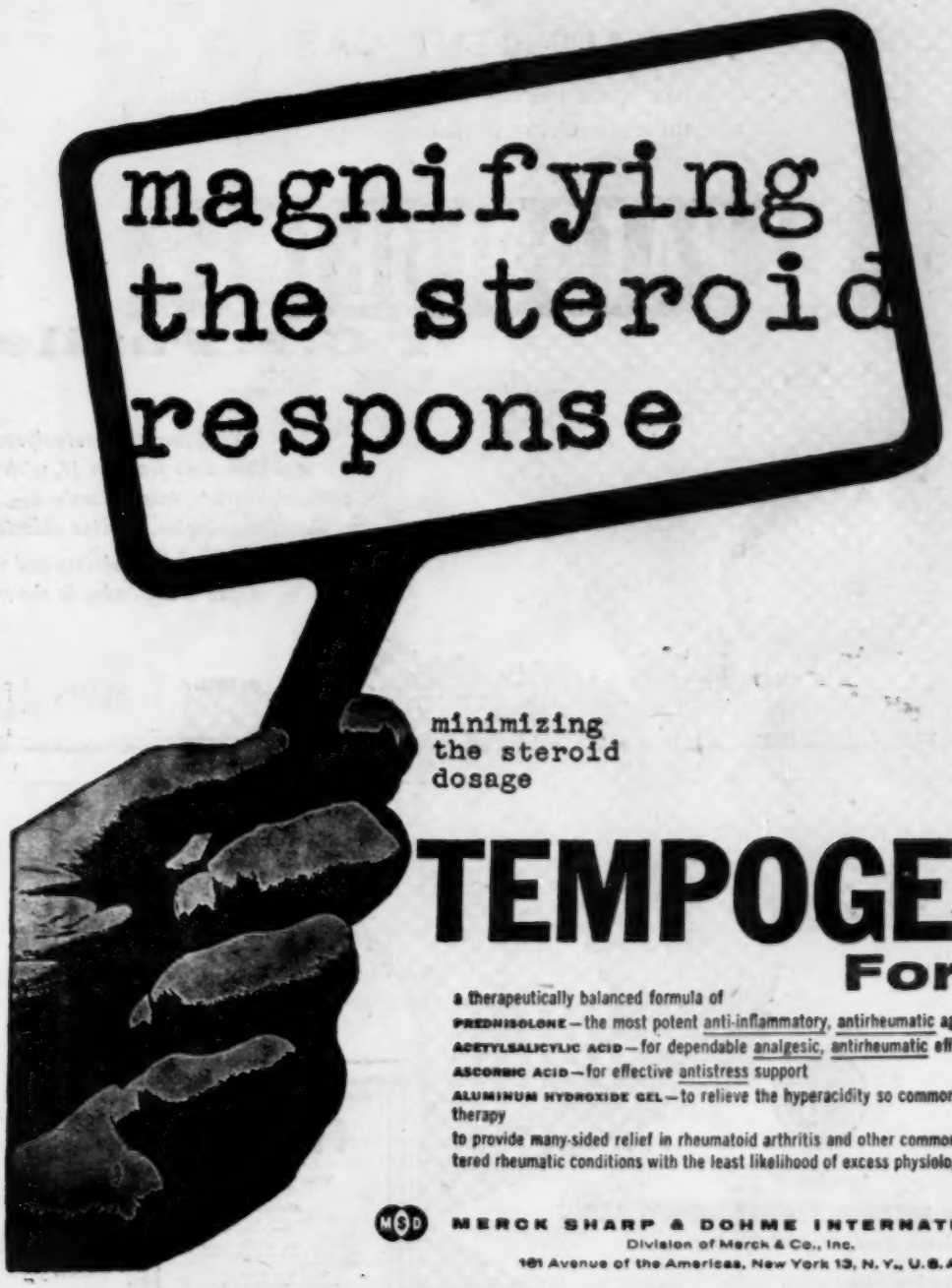

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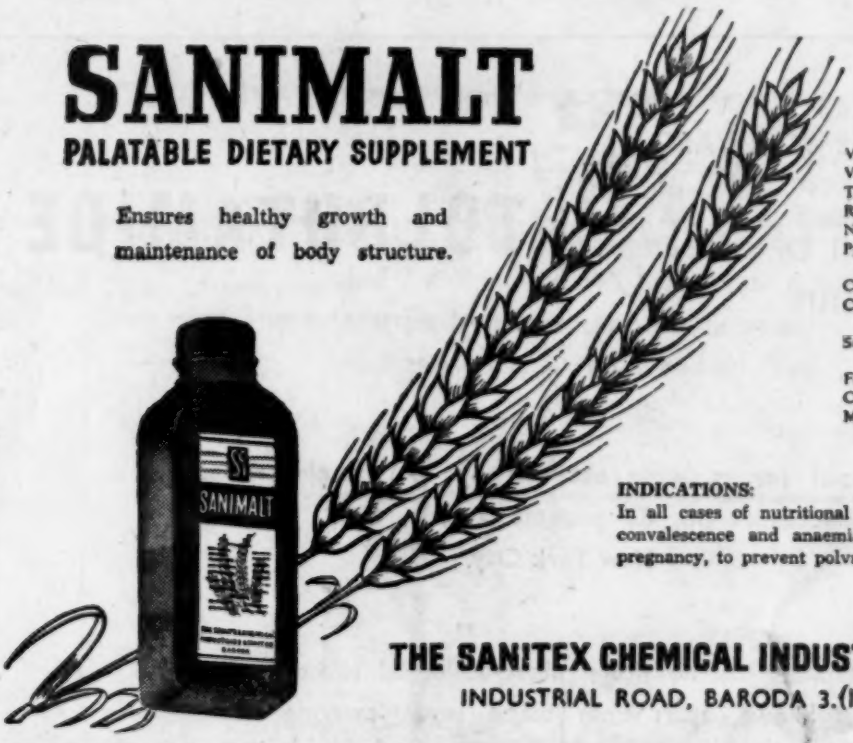

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CALCUTTA
FEBRUARY 1, 1958

ORIGINAL ARTICLES

CLINICAL ASPECTS AND DIAGNOSIS OF YAWS (FRAMBOESIA TROPICA)

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Yaws (Framboesia tropica) is an infectious, contagious and communicable disease caused by a spirochaete, *Treponema pertenue*. Principally and primarily, the skin is affected, although the lesions may spread from the skin on to the adjacent mucous membranes of the mouth and the nose, generalize by metastasis, and also occasionally involve the bones. Inasmuch as mass-campaigns against yaws are at present conducted in various countries by the U. N. World Health Organization (WHO) jointly with the United Nations International Childrens Emergency Fund (UNICEF) and together with the respective National Governments, attention is focussed both on these general health campaigns and their results as well as on the epidemiology, clinical aspects and diagnosis of framboesia tropica in particular.

Yaws is rampant in the hot and moist regions of all tropical countries. Whereas syphilis is mostly transmitted through sexual intercourse, and occurs comparatively seldom as an "extragenital" infection, *yaws is contracted through intimate bodily contact from skin to skin*, especially in childhood. Theoretically, spirochetes could be transported by various insect species (Musca, Hippolates), but this is obviously of no practical portent.

Neither morphologically and by dark-field examination nor serologically *Treponema pertenue* causing yaws, and *Treponema pallidum* causing syphilis, are distinguishable from one another but they produce an entirely different pathology (Figs. 11 and 12, *vide* Plate). Consequently, both the clinical lesions and the course of the disease in man and suitable animals (monkeys) likewise differ. As stated above, framboesia tropica is mainly a skin disease, whereas syphilis attacks not only the skin but usually soon the inner organs, too, namely, the lymphatic and cardiovascular system including the heart, and bones, liver, kidneys, lungs, stomach, and the central nervous system. Moreover, in syphilis infection of the foetus through the maternal placenta and the umbilical cord may occur sometimes beyond the 16th week of pregnancy and prior to birth ("congenital or connatal syphilis"). On the other hand, there does not exist any "congenital" framboesia prior to birth, and no affections of the inner organs and of the cardiovascular or central nervous system.

Hence, this different biological behaviour of the two respective treponemata can logically be also interpreted in that sense that *Treponema pertenue* predominantly affects the epidermis, viz., it is *"epidermotrop"*, and that *Treponema pallidum* attacks all embryonic layers, ectoderm, entoderm and mesoderm with even distinct preference for the latter, viz., it is *"mesodermotrop"* or *"panblastotrop"*.

INITIAL LESIONS

Yaws papule—Experimentally, 10-12 weeks after inoculation with virulent, viable *Treponema*

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pertenue, there appears as the initial "primary" lesion a papule (Fig. 1A, *vide* Plate), i.e., a small, circumscribed, solid yet soft skin elevation which may soon assume elevation and diameter of a *papilloma*.

The tendency to shed the covering epidermal surface due to excessive inflammation and exudation, and to ooze, may soon lead to the formation of a non-adherent yellowish crust, consisting of dried serum and epidermal scales. On removal of this, the raw pinkish surface may resemble a raspberry which has led French observers coin the name "framboise" (raspberry).

When limited numbers of *Treponemata pertenue* are carried by the lymphatic vessels to the neighbouring skin areas, or if these are directly infected from the initial "mother-yaw", daughter efflorescences may arise (Fig. 1B, *vide* Plate) as long as immunity has not yet sufficiently developed to prevent "super-infection". Such is possible during this initial, early stage of yaws in man and animal up to about the seventh month, only, after which time immunity is sufficiently developed that 'super-infection' upon reinoculation will no longer "take".

Generalized Metastitic Polypapillomata

Ten to 12 weeks after experimental inoculation of yaws in man and animal, a crop of generalized metastatic polypapillomata may appear (Fig. 2, *vide* Plate), usually while the initial, socalled "primary" framboesial lesion (papule or papilloma) still persists. These generalized metastatic framboesial efflorescences (Fig. 3, *vide* Plate) also commence as papules but rapidly grow, and progress into the typical papillomata. *It is highly significant that the clinical aspects as well as the underlying histopathological changes of these generalized metastatic polypapillomata are identical with those of the initial framboesial papules and papilloma, respectively.*

The mechanism of appearance of this crop of metastatic polypapillomata is obviously haematogenous. Aside from this, some regional, apparently lymphogenous propagation of *T. pertenue* not infrequently leads to rudimentary metastatic papillomata limited near to the site where the initial framboesial lesion is present. They are separated from the initial lesion by stretches of healthy-looking skin. They may be indicative of a tendency inherent in the framboesial process to generalize in successive stages. It was the occasional occurrence of these regional lymphogenous "daughter-yaws" that gave rise to the somewhat ambiguous term "mother-yaw", which now is sometimes loosely used for the persisting initial yaw, if and when generalized metastatic papillomata already co-exist.

These early generalized metastatic polypapillomatous framboesids are usually so uniform as to tend to monotony, and often remind one of multiple impetigo lesions, particularly in children. The polypapillomata with their somewhat fungating appearance are easily distinguishable from secondary syphilids, except when the latter also present signs of marked hypertrophy, but then such lesions have long been designated "framboesioid" syphilids.

"Wet Crab" Yaws

The multiple polypapillomata on palms and/or soles (Fig. 4, *vide* Plate) as "wet crab" yaws deserve special attention, inasmuch as it has been proved experimentally (Schöbl and Hasselmann, (1932) that they represent the typical "metastatic inflammatory exudative efflorescences" appearing simultaneously with the metastatic crop on other skin regions. The amount of exfoliation and hyperkeratosis may greatly vary, so that allusion is sometime made to psoriasis ("framboesiderma psoriasiforme"). At no time, however, should these well circumscribed, discrete, often treponema-positive "wet crab" yaws lesions of the early metastatic generalization stage be confused with the typically diffuse, hyperkeratotic, often fissured or cribrated, persistent chronic yaws lesions of the late stage known as "keratodermia plantaris *et* palmaris".

Other Early Skin Lesions

If some annular and circinate arrangement of papules and/or rudimentary papillomata in this comparatively early period of the metastatic generalization stage is evident, the term *"ringworm yaws"* has been sometimes used to allude to the similar morphological appearance in certain fungi infections of the skin (tinea, trichophytosis). Usually, other typical multiple papules and papillomata are coexistent, so that only some may, perhaps, show this rather over-emphasized semicircular ringworm-like configuration of the dermatological aspect, not infrequently seen in patients.

The amount of inflammation and the degree of immunity reached, together with one's individual form and manner of reactivity govern in each patient his peculiar response during the course of the disease. Hence, if in the course of yaws a certain immunity has been attained, and the inflammatory process in the skin abates with attenuated formation of hypertrophic, oozing poly-

Fig. 1A—Initial 'primary' framboesial papilloma. Fig. 1B—Initial 'primary' mother-yaws papilloma, with lymphogenic local 'daughter-yaws'. Fig. 2—Polypapillomata framboesica of the metastatic generalisation period.

Fig. 3—Polypapillomata framboesica of the metastatic generalisation period. Fig. 4—Plantar polypapillomata of the metastatic generalisation period. Note site and scaly slightly hypertrophic character and beginning oozing of these circumscribed lesions, not to be confused with the distinct hyperkeratosis and fissuring of the keratodermia plantaris of the late stage in yaws. Fig. 5—Keratodermia plantaris of the late yaws stage.

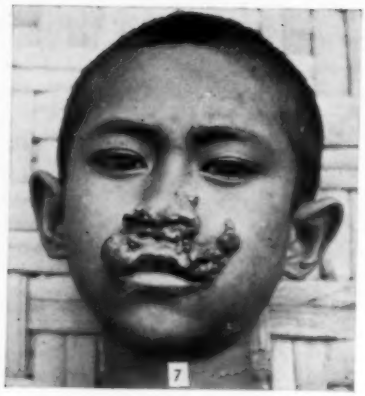
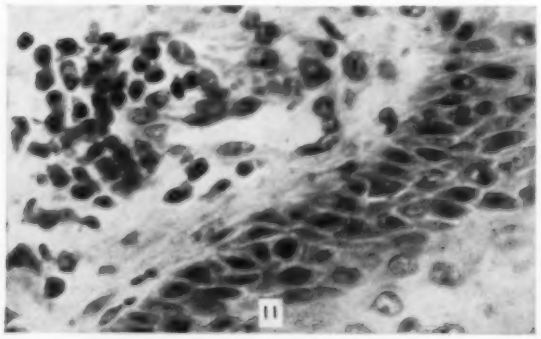


Fig. 6—Keratodermia plantaris 'cribrata' of the late yaws stage. Fig. 7—Yaws papilloma : note the site around mouth and nose orifices, and from which rhinopharyngitis mutilans ('gangosa') might later on commence by obvious 'allergic' exacerbations.

Fig. 8—'Gangosa' (rhinopharyngitis mutilans) of the late ulcerative yaws stage, with still co-existing polypapillomata. Figs. 9 and 10—Rhinopharyngitis mutilans ('gangosa') of the late ulcerative yaws stage.



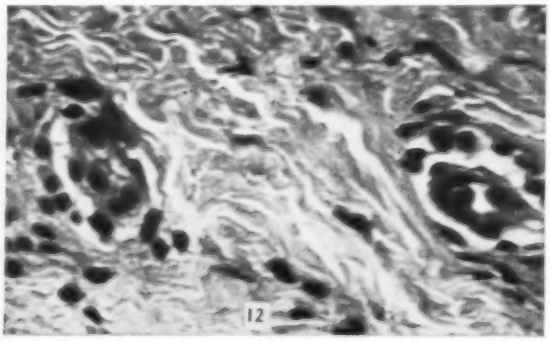


Fig. 11—Yaws papilloma : Extensive inflammation of corium and cutis with perivascular infiltrations—predominantly of plasma cells. Capillary vessels enlarged but without intima or media pathology. Fig. 12– Syphilitic papule with already considerable vascular pathology : media infiltration, intima proliferation with partial obliteration of lumina.

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papillomata, then *typical follicular, conical, hyperkeratotic yet dry papules* may be present on any part of the skin, sometimes with still coexistent polypapillomata. Usually slight scaling may be noticeable, but furfuraceous desquamation is an exception, and they never ooze. These are the rather atypical, persistent framboesids appearing somewhat late during the generalized metastatic stage called *"keratosis pilaris"* ("lichen follicularis", "pian d'artre"). They should not be confused either with the keratosis-like lesions on the elbows, upper arms and lateral face obviously due to deficiency in vitamin A, or with similar circumscribed follicular "pebble-stone-like" patches occasionally found in leprosy.

Pigmentary changes—Papillomata often heal with changes in pigment. Hyperpigmentation is frequently present, but restricted to the healed yaws lesions. It may persist for a long time. Likewise, loss of pigment with hypopigmentation may remain visible in the centre for a long time as an aftermath of framboesial skin lesions. These depigmented areas at the very site of previous former yaws lesions however must be strictly differentiated from the otherwise typical "leucoderma" ("vitiligo") on the back of the hands and/or the feet which are not necessarily always the result of framboesial origin, unless they coexist with, and are contiguous to the late keratodermia changes on the soles and palms, as discussed later.

It is a moot question whether *ichthyosis* is a direct sequela of yaws. Such dry skin desquamation is frequently encountered in tropical people, especially as a symptom of nutritional deficiencies, together with cheilitis due to ariboflavinosis.

Keloids—Healing of yaws papillomata not infrequently leads to hypertrophic scar formation known as "keloid". This is the wellknown racial tendency of the connective tissue in people with dark pigmented skin for excessive connective tissue growth leading to benign fibroid tumours. Whether, e.g., a cut of the skin, or the impulse of the framboesial inflammation, healing in either instance may often lead to excessive formation of connective tissue in the resulting scar with the visible morphology of "keloid". These may then affect rather larger skin areas with resulting mutilating scars.

These keloids as well as the extensive scar formations in healed former yaws lesions may also result in contractures, inhibiting functions of adjacent joints.

Loss of hair—Local as well as generalized loss of hair (alopecia) is not infrequently found in yaws patients, and also experimentally in monkeys. Inasmuch as often other pathology, such as dermatophytosis and nutritional deficiencies may play a role, alopecia cannot necessarily be considered a typical symptom in yaws.

Keratodermia

This scaly, diffuse, callous often fissured hyperkeratotic thickening of the skin on soles and/or palms, with much pains when walking or using the hands, is by far the most frequent yaws lesion observed in the field and dispensary comprising well over 50 per cent of all patients seen. It is also the most important yaws pathology from the economic point of view, inasmuch as the patients are incapacitated, and may be totally unable to work at all. Yet, often after one single but ample dose of penicillin all pain and cracks in the skin may completely disappear. The patients may again be able to do all work with all pains completely disappeared and the deep cracks healed, although the thickening and exfoliation of the skin is subsiding but only gradually, perhaps.

This *"keratodermia plantaris et palmaris"* as skin affection is limited to soles and/or palms with enormous hyperkeratosis, pronounced exfoliation, deep fissures (Fig. 5, *vide* Plate), and usually very painful. Depending on the individual cellular response of each patient, various clinical pictures may be conspicuous such as more map-like defects, a sieve-like appearance (*"keratodermia framboesicum cribratum"*) (Fig. 6, *vide* Plate), or "moth-eaten" feet ; the peculiar gait has led to the connotation "dry crab-yaw".

Histopathology—The histopathology shows enormous thickening of the corneal layer (hyperkeratosis) with marked parakeratosis and acanthosis, but only slight inflammatory changes in the cutis. Since treponemata have never been demonstrated in these late hyperkeratotic plantar and palmar lesions, it seems doubtful whether they may factually constitute only some allergic tissue response, and thus be comparable to e.g. *keratodermia blenorrhagica* as sometimes seen in gonorrhoea. Yet, regarding epidemiology and control of yaws, this question of pathogenesis in these late treponema-negative keratodermia lesions is of paramount importance, whether they are simply 'non-infective' late lesions, and remain so, or whether they deserve to be considered "potentially infective", nevertheless, with possibly other treponema-positive lesions re-appearing, and thus practically perhaps one of the most important link in the chain of infection due to their dominating prevalence.

On the soles, it is remarkable that not those parts subjected to constant and most pressure from

weight and trauma are principally affected (heel, lateral aspects, band below metatarsal capitula) but rather also instep and centres of soles, which makes it quite distinct from the otherwise so numerous ordinary clavus thickenings.

Framboesial Ulcerations

In the dispensary and field, yaws patients with some sort of ulcers may be quite numerous. It is impossible to ascertain correctly, either by simple examination and much less by doubtful interrogation regarding history and onset, the exact pathogenesis of these late framboesial ulcerations, if they are framboesial at all. Experimentally, Schöbl *et al* (1928) succeeded in reproducing in the Philippine *Macaccus cynomolgus* all clinical stages of yaws including ulcerative *rhinopharyngitis mutilans* ("gangosa"). Schöbl (*loc. cit.*) stated: "Initial or metastatic yaws on mucous membranes are not known to exist; but direct spreading of primary or metastatic yaws from the skin across the mucocutaneous border (Fig. 7, *vide* Plate) on to the mucous membranes is by no means an uncommon occurrence. This speaks in favour of my contention that the starting point of gangosa is the skin yaw or late ulcerating yaws lesion, extending directly on to the mucous membrane . . . . that the histopathological process affects a very extensive area of the mucous membrane, far greater than the area which actually undergoes the real ulceration in any stage of the development and course of the condition . . . . by direct extension of skin lesions, either early (by superinfection) or late, on to the mucous membranes of the nose shows that this mode of pathology is the commonest if not the only one". No additional experimental work has been conducted and published since, to shed any further light on this important problem appertaining to ulcerations which are, or may be, due to framboesia tropica alone.

The ulcerations in yaws are not seldom at the very site of the initial, primary yaws, inasmuch as this latter may not subside, but persists throughout even the period of metastatic generalization, and may be still present during the late stage of the disease due, apparently, to peculiar immunologic phenomena. Here, a low-grade yaws infection, either with a well-developed initial papilloma or simply an abortive initial lesion, is leading only to a low-grade reactivity in the host. During a possibly "negative phase", as demonstrated both serologically and experimentally by attempted superinfections, a crop of metastatic generalized polypapillomata may subsequently appear. These cause obviously such sensitization that any sudden increase in antigen, either by liberation from the yaws papillomata or by experimental injection of viable, virulent treponemata, may be followed by local exacerbation of any existing lesion, be this still initial yaw or a metastatic papilloma.

Hence, such late ulcers can be present together with the crop of polypapillomata. The ulcer may be single, or multiple and close together. In such case, the centrally located largest ulcer is often still referred to as "mother-yaw" although this term is confusing with the factual papillomatous "mother-yaw" during the very early stage of framboesia with the real initial yaw in the centre surrounded by regional lymphogenous "daughter-yaws" papillomata.

If no other typical yaws lesions are co-existing, it is most difficult to diagnose ulcerations, whether single or multiple, as due to yaws alone, especially if they are situated on the lower leg. "Tropical ulcers", whatever their aetiology and pathogenesis may be in a special patient, deserve careful diagnostical consideration in each instance.

Not infrequently, a single ulcer presumably diagnosed as yaws, may prove, on closer inspection, to be factually quite elevated above the skin surface and represent a persisting, though typical framboesial papilloma, perhaps still the initial yaws.

"Gangosa" (Rhinopharyngitis Mutilans)

The rather common ulcerations of the mucocutaneous borders of the nose and mouth, and of the palate deserve special attention. In man and monkey, it is remarkable how initial yaw, or also papillomata of the metastatic generalization period may linger around the orifices of the mouth and the nose (Fig. 8, *vide* Plate). Scars of the junctures are commonly seen among many people. Somewhat they remind of Parrot's radial cicatrization in syphilis, but the healed framboesial scars are more uniformly flat, and not at all limited to the angles of the mouth only. They may extend and encompass larger areas of the adjacent mucocutaneous borders of the nose and mouth, the nostrils and cheeks.

Clinically and in the field, one can regularly observe cases in all stages: the yaws papilloma around these orifices may have healed completely but with slight typical flat scarring, where only limited ulceration and necrosis had apparently occurred. Or, deeper cicatrization is now again covered by intact epidermis. Finally, the ulceration may have affected not only the skin and the mucosa but even the deeper tissues such as the cartilages and bones of the palate and nose with

resultant vast mutilation and disfigurement (Figs. 9 and 10, *vide* Plate). Once an active spreading yaw is established near the mucocutaneous borders of the nose or mouth, whether initial or metastatic, merely an allergic exacerbation is apparently required to accomplish such destructive mutilation in the face classified as "gangosa" or "rhinopharyngitis mutilans". It is essential therefore, that in children such possibly early yaws papillomata around the face orifices are adequately treated to prevent development into such late mutilating ulcerations.

The comparatively frequent occurrence of gangosa in framboesia tropica lies obviously in the close 'ontogenetic' relationship of the mucous membranes of the face orifices to the adjacent outer skin. In embryogenesis, the upgrowth of the mandibular arch, nasal and maxillary process around the primitive stomodeum form the final face-contours. For a time, the ectodermal lining comes in direct contact with the entoderm of the foregut, pressing aside the intervening mesoderm. Embryologically, a considerable portion of the anterior oral and nasal mucosa stems from the ectoderm and is thus a direct continuation from the outer skin. The border is about the level of Sessel's pocket in the pharynx, which, incidentally, is also the sensory border of the maxillary nerve (trigeminus, 2nd ramus).

These late ulcerative lesions of the nasal frame and the palate usually referred to as "gangosa" (rhinopharyngitis mutilans) appear to be more frequently found among females than males in the tropics, although further statistical proof is still required.

In contrast to the affection of the nose and oral mucosa proper, it is quite significant that the papillomatous, or "condylomatous" yaws lesions of the anal region are always strictly "peri"-anal, and separated from the anal orifice by a narrow strip of healthy skin, unlike the syphilis condylomata.

Bone and Joint Lesions

As to the bone lesions without ulcer formation, and without the breaking down of tissues covering the bones, periostitis with thickening and bowing of the tibia, the humerus or the forearm, are not seldom encountered in the field especially in children. Since treponemes are never demonstrable in such bone or joint pathology, neither in yaws nor in similar syphilitic lesions, it seems safe to assume that such changes are either toxic or allergic, too. This view is supported by the frequent observation of indentical periosteal pathology in children suffering from chronic pyodermia (Chiari, 1938). The same possible pathogenesis may, perhaps, apply to those conditions like painful thickening of the fingers ("dactylitis") of metatarsus or metacarpus, and involvement of synovia, tendons and joints, at least sometimes. The frequency and diversity of "arthralgia" and "bone" lesions reported from the field calls for judicious evaluation relative to framboesial origin, unless radiological evidence together with complete disappearance following specific treatment sustain such claim.

"Gundu"

"Gundu" as a typical symmetrically bilateral, solid enlargement of the nasal bones is considered as a late yaws manifestation. This paranasal hyperplastic osteitis is mainly reported from Africa and Brazil, but certainly extremely rare in South East Asia and the Pacific.

So-called "Latent Yaws"

The term 'latent' in any infectious and communicable disease connotes (1) complete freedom at a certain time from any clinically visible symptoms and manifestations of that disease, though serologically the disease might still be discernible and (2) that under certain conditions, sometimes still completely obscure, relapses may occur with either recurrence of typical clinical lesions and symptoms, or with reappearance of the respective causative agent, or both.

From the standpoint of epidemiology and public health, it is this latent stage in contagious diseases that deserves the greatest attention governing all control and preventive measures.

Although *Treponema pertenue* of yaws cannot survive apparently any length of time in mesodermal tissues of lymphatic nodes, we do not know whether "silent" or "quiescent" infection of the skin exists in yaws and how long, e.g., *Treponema pertenue* may survive and remain virulent and infective in the skin. Nor has it been ascertained whether and under which circumstances patients without framboesial skin lesions, but with keratodermia plantaris, may remain potentially infective with the possibility of treponemes reappearing anywhere. The same applies to patients with long lasting positive serology, just as in syphilis.

As a practical guide and to guard against reappearance of 'active' framboesial lesions containing viable, virulent treponemata risking infection of other persons, adequate treatment with penicillin is indicated in all patients with definite and succinct evidence of yaws, either previous or pre-

sent. From the standpoint of adequate control of yaws, it is imperative to include treating all 'contacts' as well in order not to miss those persons already infected but still in the incubation period without yet any yaws lesions clinically visible.

Other Manifestations

The clinical and morphological lesions of 'keratosis pilaris' (lichen follicularis), ichthyosis, keloids as hypertrophic scar formations, and of pigmentary changes, both hypopigmentation as loss and hyperpigmentation as increase in the normal skin pigment, have already been discussed, inasmuch as either may appear already during an early stage of the disease.

Leucoderma or vitiligo—As to the very marked loss of pigment with typically bilateral, often even symmetrical location on the lower legs, arms and adjacent extensor aspect of the feet and the hands, the term "leucoderma" or "vitiligo" is appropriate. If such depigmentation is present at the site of and contiguous to yaws lesions, their aetiology is obvious. Otherwise, leprosy, dermatophytosis, pinta, etc., must be considered.

On the back of the feet and the hands, nearly symmetrical leucoderma is often observed in the tropics without any definite symptoms of yaws whatsoever. Their bilateral, somewhat symmetrical, depigmented pattern at once suggest some central nervous disturbance of the adrenal or pituitary metabolism, even if such disturbance cannot be ascertained. On the other hand, such loss of pigment concomitant with marked scaling and occasionally spreading from plantar or palmar keratodermia on to the lateral and dorsal aspects of the feet and the hands points to framboesial pathogenesis, especially when positive serology exists and if healing sets in following specific therapy. In the Duala district of Cameroon such is known as "Mbelung" which term connotes this co-existing leucoderma with typical plantar and/or palmar hyperkeratosis.

Nodositas juxta-articularis—In yaws (much less frequently in syphilis) juxta-articular nodules are sometimes observed. They are typical hard fibromata. They may be present at and above any joint, especially elbow, ankles, knees or close by, and more above the tendons, as, e.g., above the greater trochanter. The variable site and the often symmetrical appearance are difficult to explain, though in certain instances, perhaps some local mechanical irritation and constant minor trauma as cross-legging, kneeling, sleeping on hard boards with constant exposure to pressure etc. may be responsible.

Classification and Nomenclature of Yaws Lesions and Stages

In framboesiology as in all realms of medicine, inerrancy of human and animal experimental evidence must be accepted. Succinct clarity in nosological nomenclature, and standardization of definitions are imperative in all phases of vital statistics and clinical descriptions. Without them, no intelligent appraisal of morphological phenomena and epidemiological data is judiciously possible.

It is difficult to classify framboesia according to clinical lesions easily and practically recordable even by less specialized field personnel, a fact often deplored, and recently again by the South Pacific Commission (H-10 Project Report, Circular No. 6). The striking overlapping of successive stages and crops of yaws efflorescences and their corresponding requisite histopathological features are all in singular contrast to the more or less clear-cut divisions into, primary, secondary and tertiary syphilis, respectively, and to the latter's pertinent morphological and pathological changes. In a very general way, framboesial lesions can be merely and sufficiently classified descriptively as (a) Initial early yaw, whether papular or already papillomatous ; (b) generalized metastatic papules and mostly already papillomata ('polypapillomatous stage') ; (c) the late stage with (1) keratodermia of the soles and/or the palms, and (2) ulcerative lesions, wherever these are located, and irrespective of their mostly indeterminable pathogenesis, except in experimental yaws. If further subdivisions are considered appropriate in a particular patient, such adequate dermatomorphological designations would be in order, e.g., "keratosis-pilaris-like" framboesides, etc. Finally, there remains, as in all infectious communicable diseases, the problem of "latency", i.e., without any visible clinical pathology except, perhaps, positive serology, and scars and disfigurements (contraction, gangosa). From the point of public health and preventive medicine, and as a practical issue in field control measures, adequate treatment of these 'latent' cases is as imperative as that of the socalled 'contacts'.

To simplify the polyglot and often too verbose terminology in yaws, and to impede further confusion, the Expert Committee on VD of the World Health Organization suggested in 1952 in London to adopt the following practical and adequately descriptive yet succinct terminology for mass-campaign recording in the field : (1) Initial lesions ; (2) multiple papillomata ; (3) "wet crab yaws" (which are factually early generalized

metastatic papillomata on the soles) ; (4) other early skin lesions ; (5) hyperkeratosis (which is factually "keratodermia plantaris and/or palmaris") ; (6) gummas and ulcers ; (7) gangosa (rhinopharyngitis mutilans) ; (8) bone and joint lesions ; and (9) other manifestions. This abbreviated nomenclature appears sufficiently concise yet resilient enough to cope with the plethora of field requirements when usually and often but quickly and briefly trained paramedical personnel is called upon to diagnose, appraise and report.

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PNEUMOCONIOSIS IN THE NON-INDUSTIAL POPULATION OF RAJASTHAN

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Heilig *et al* (1953) reported a high incidence of emphysema and the consequent production of cor pulmonale amongst the patients examined by them in Jaipur. Enquiries made from clinicians and radiologists have revealed the fact that silicosis is not commonly encountered in Rajasthan, hence the cause of the widely prevalent emphysema must be sought for elsewhere. In view of the extremes of temperature prevalent in the desert areas of Rajasthan coupled with a low incidence of rainfall and the strong dust-raising winds, the inhalation of the dust particles over prolonged periods might be noxious to the population at large. The ideal method of determining the character of the noxious agents floating in the air would be to collect air samples of dust from the breathing zone. The microscopic examination of dust particles collected from the atmospheric air showed the presence of an appreciable number of minute fragments of crystals, it was, therefore, not possible to determine exactly the nature of the minerals contained in the atmospheric dust. For a proper petrographic identification, the rocks in the area under survey should be examined, as the minerals in the dust undergo decomposition to a greater or lesser extent. As the examination of the rocks would not give a correct picture of the composition of the dust, so the next best procedure was to collect dust from the tops of almirahs, which were at least six feet from the ground. The microscopic examination of this dust gave results similar to those obtained with the loose surface layer of the soil, the only difference was that the coarser particles were much less in evidence in the dust collected from the tops of almirahs. Samples of the loose surface layer of the soil were then obtained from different parts of Rajasthan and also from other areas in India and microscopic and chemical examinations of these samples were carried out.

The gravimetric procedure given in the Standard Methods of Chemical Analysis (Scott) was followed throughout. The results are shown in Table 1.

It must be borne in mind that only desert sand can be blown about easily and thus can be noxious when inhaled, whereas the clay from non-desert regions cannot be easily blown about unless there are very strong air currents and will be in general innocuous from the point of view of damage to the lungs notwithstanding the chemical composition of the soil.

It has been postulated that the dust particles of 1-5 μ are noxious especially those measuring 1 μ and bigger particles are deposited only in the upper respiratory passages (Raymond ; 1952 and Deutrebande, 1952). The examination of the sand shows that particles less than 10 μ in size are rather scanty in the soil of Jaipur. It is thus clear that inhalation of the desert sand must occur over prolonged periods if any ill-effects are to occur at all. Iron and aluminium are known to modify the noxious effects of silica (Naeslund, 1940) and their presence in the soil is probably responsible for the absence of typical silicosis in the non-industrial population of Rajasthan.

The presence of a large amount of quartz in association with iron and aluminium might be in some way responsible for the widespread emphysema reported by Heilig *et al* (*loc. cit.*). It should be clearly borne in mind that a clinical diagnosis of emphysema except in more advanced cases, cannot be made with any confidence (*Proc. Roy. Soc. Med.*, 1952). In order to determine the cause and extent of emphysema, the lungs of unclaimed cases dying in the S. M. S. Hospital were carefully examined. The post-mortem material was divided into two categories, i.e., cases showing mainly pulmonary lesions and non-pulmonary cases. Out of 32 pulmonary cases, 10 cases

TABLE 1—SHOWING RESULTS OF ANALYSIS OF DUST OBTAINED FROM VARIOUS PLACES

Place	General Nature	Silicon dioxide g. %	Fe_2O_3 g. %	Al_2O_3 g. %
Jaipur	Not typical desert sand. Angular particles of quartz maximum. Decomposing feldspar, epidote, mica tourmaline and ferrugenous materials sparsely present	78·4	1·035	6·4
Bikaner	Typical desert sand. Quartz maximum. Decomposing feldspar, epidote and garnet in small amounts	63	3·4	9·1
Jodhpur	Not true desert sand. Quartz plenty. Some mica and feldspar. Appreciable amount of ferrrugenous clay	66·1	1·19	8·3
Udaipur	Not true desert sand. Angular quartz particles coated with ferrugenous material. A few feldspar. Garnet rare. Organic material appreciable amount	63·7	1·25	7·3
Kotah	Mostly ferrugenous clay. Fair amount of quartz and mica	—	—	—
*Coonoor	Mostly ferrugenous. A few quartz particles	—	—	—
*Patiala	Mostly ferrugenous. Small amounts of quartz, garnet and pologonite	—	—	—

* Controls.

showed the presence of marked interstitial pneumonitis (Figs. 1 and 2, *vide* Plate), 13 cases showed the existence of a medium degree of interstitial pneumonitis and nine cases were either free from interstitial inflammation or showed only a slight degree of it. No definite opinion could be given in ten cases due to the presence of marked chronic venous congestion or inflammatory lesions of the lungs, e.g., bronchopneumonia. Focal emphysema was found in association with fairly marked interstitial pneumonitis (Fig. 3, *vide* Plate). Due to the associated pulmonary lesions, the co-existing histological changes associated with interstitial pneumonitis could not be studied satisfactorily.

Out of 39 non-pulmonary cases, 15 cases showed the existence of patchy but marked interstitial pneumonitis, 12 cases had a medium degree of the lesion and only nine cases showed either the absence or only a slight degree of interstitial inflammation. No definite opinion could be given in three cases due to the existence of complications. Due to the coexistence of the disease leading to death in these cases, a proper study of the lesions of the lungs could not be carried out.

An interstitial pneumonitis and fibrosis can be caused by a number of infections (influenza, atypical pneumonia, rarely by pneumococci, streptococci and staphylococci) as well as chemical agents (antimony trioxide, cadmium oxide, silica, asbestos etc.), it was considered advisable to examine the lung of apparently healthy people dying of a violent death, infective factors could thus to a great extent be excluded.

Out of the 56 medico-legal cases, 22 showed the presence of marked interstitial pneumonitis, 23 of a moderate degree and only 11 cases were more or less normal or showed only a slight degree of interstitial pneumonitis. The lesions were, in general, patchy in nature and were associated with focal emphysema, when the interstitial inflammation was fairly marked. Out of these 56 cases, there were three cases showing evidence of pulmonary tuberculosis and nine cases showed lesions of tuberculosis of the hilar lymph nodes in varying degrees. In addition to the interstitial pneumonitis, 37 cases also showed one or more of the following co-existing lesions: varying degrees of fibrosis, which was either (a) perivascular and peribronchial (Fig. 4, *vide* Plate) or (b) interlobular or (c) subpleural. The fibrosis could also be seen in some cases to be occurring in more than one area. The other features noticeable to a variable extent were areas of granulomatous infiltration (Fig. 5, *vide* Plate) and presence of dust cells. It has been noticed in our experimental work on tuberculosis in guinea-pigs, that interstitial pneumonitis and foci of round cell infiltration were the only lesions in the lungs of guinea-pigs, when the infecting dose was small or the resistance of the guinea-pigs was fairly high, so the interstitial pneumonitis in 12 out of 56 cases could have been due to tuberculosis alone, but the presence of dust cells in some of these cases ruled out a purely tuberculous lesion.

There was further evidence in support of the lesions being due to inhalation of dust containing silica. The silica content of normal lungs in the West is 0·25 per cent, it may go up to 1·0 per

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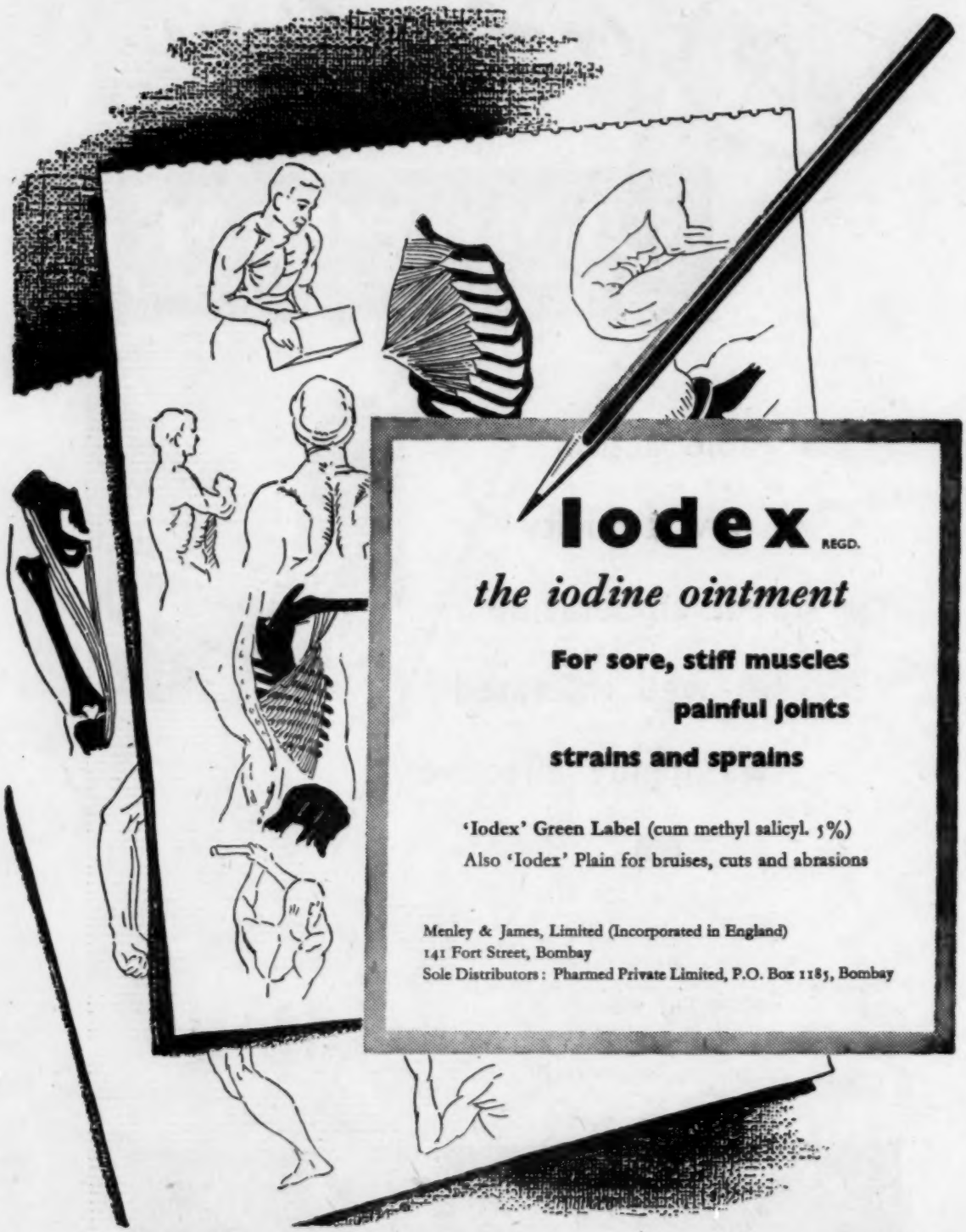
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cent without producing definite lesions (Patty, 1948). The silica content of lungs looking normal naked eye in Rajasthan varied from 1·5 per cent to 4·6 per cent in a small number of cases and in a few animals injected with silicon dioxide or Jaipur dust, it ranged between 3·5 per cent and 2·5 per cent.

The sections of lungs stained with haematoxylin and eosin were examined for the presence of doubly refractile silica particles with the help of polaroids. These particles had more or less the same refractive index as that of commercial quartz. It has already been shown that a large percentage of particles of quartz in the dust are coated with iron, the chemical examination suggests that there is also probably a coating of aluminium, hence the refractive index cannot be exactly the same as that of commercial quartz.

The particles of silica were fairly abundant in areas where there was a deposit of carbon (Fig. 6, *vide* Plate), but the lungs were otherwise more or less normal. In the lungs showing evidence of pneumoconiosis in the form of fibrosis (Fig. 7, *vide* Plate), granulomatous lesions, etc., the silica particles were either present in lesser numbers than in normal lungs or were found only to a negligible extent.

It was necessary to examine pieces of lungs as controls from apparently healthy people inhabiting non-desert areas. Materials from eight medico-legal cases obtained from Bombay were examined. There were three cases showing patchy but medium interstitial pneumonitis, only one case showed the presence of a granulomatous lesion, most of the cases had congestion of the alveolar walls with or without oedema. But none of the cases showed the presence of collections of doubly refractile silica particles when examined with the polaroids. The lesions in the cases showing interstitial pneumonitis or granulomatous infiltration were obviously not due to pneumoconiosis.

The presence of interstitial pneumonitis along with areas of granulomatous infiltration due to inhalation of dust does not by itself constitute a serious threat to a person's health, but there is a possibility of the causal agent predisposing the patient to more serious pulmonary lesions. From this point of view, it was found that out of 154 autopsies carried out in the Pathology Department at Jaipur, there were 30 cases of pulmonary tuberculosis, 22 of pneumonia, 2 of bronchiectasis and 4 cases of primary bronchogenic carcinoma. It appears that about 30 per cent of the necropsies were from infective pulmonary cases, which is probably quite a high figure and may be due to the pre-existing pneumoconiosis ; but the number of cases is not sufficiently large to arrive at definite conclusions.

Smart and Anderson (1952) have reported a greater incidence of pneumonia in Kieselgurh workers than is usually seen. Gough (1947) described an infective pneumoconiosis in which tuberculosis played an important part. In it collagenous fibrosis developed in and around the coal foci to form "infective nodules" which later tended to fuse and form massive areas of fibrosis characteristic of the later stages of the disease. Death was frequently due to right heart failure, and, less often to active tuberculosis thus differing from classical silicosis. It, therefore, appears that the cor pulmonale and a probable high incidence of tuberculosis and pneumonia are due to the prevalence of a pre-existing pneumoconiosis in Rajasthan.

A great deal of stress has naturally been laid on the existence of silicosis in industrial workers, but the problem of pneumoconiosis in the non-industrial population can only be encountered in the desert regions. Policard and Collet (1952) did not find any lesions of silicotic type on autopsy of four native mounted police, but in the dust particles in peribronchial and periarterial sheaths, histospectrographic examination revealed silicon in dust masses. The presence of a large amount of silica is not essential in the dust inhaled to cause silicosis. On the basis of the data reported by the Congress of Industrial Workers (Pelayew) it may be assumed that innocuous amounts of silica mixed with other dusts, e.g., coal-dust will clog the lungs and cause silicosis.

Figs. 1-7 give the salient features of the prevailing pneumoconiosis.

Summary

The existence of pneumoconiosis in the non-industrial population of Rajasthan has been described. The lesions are due to the presence of silica in the dust inhaled along with small amounts of iron and aluminium.

Acknowledgments

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BRONCHOPULMONARY MONILIASIS

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Moniliasis of the lungs is caused by the fungus *Candida albicans* and is clinically divided into two types :

(1) Bronchopulmonary and
(2) Pulmonary.

Bronchopulmonary moniliasis is the term employed to designate that type of candida infection of the lungs in which the disease process is limited to the bronchial tree. This type of infection, which is not at all uncommon, is manifested clinically by the signs and symptoms of an ordinary bronchitis. The temperature may be normal or only slightly elevated, and the health of the patient is not always seriously affected. The infection may disappear spontaneously or become chronic and mimic the symptoms of a chronic bronchitis of bacterial origin.

The radiological findings in the bronchopulmonary type may be as follows : The x-ray films of patients with bronchial candidiasis usually show little more than a non-specific type of peribronchial thickening. Sometimes a peculiar hazy type of linear fibrosis can be seen. Although such a picture is not diagnostic, the possibility of candidiasis has often been suggested and cultures very frequently have confirmed the tentative diagnosis.

Pulmonary moniliasis is the term reserved for infections of the parenchyma of the lungs. While parenchymal moniliasis is not as common as the bronchial form, it is a more serious disease. The combination of cough, fever, dyspnoea, chest pain, haemoptysis and night sweats, may resemble pulmonary tuberculosis. The temperature and the pulse rate are elevated moderately, pleural pain is common, adhesions are not rare and pleural effusion occurs occasionally (Smith, 1947 ; Riddell, 1952). Cough is harassing and the patient brings up mucoid, gelatinous sputum which sometiemes is blood streaked. A purulent sputum indicates that secondary infection with pyogenic cocci probably has occurred.

Areas of consolidation resembling a bronchopneumonia may be scattered throughout two or more lobes ; infrequently there may be lobar consolidation. Medium moist rales are present over the areas of involvement, but dullness and changes in the breath sounds are rare. The more severe infections have the physical signs of confluent or lobar pneumonia with dullness, increased tactile fremitus and prolongation of the expiratory sounds.

It is probable that many of the lesions of pulmonary candidiasis heal spontaneously and completely, but in other instances recovery is not complete and the patient may develop the clinical picture of the chronic bronchial type. Death may occur when two or more lobes are involved with a dense pneumonic process.

The radiological findings in pulmonary moniliasis may be as follows : The shadows vary in size and shape and resemble those seen in bronchopneumonia, except that the edges of the lesions are less sharply defined. Two or more lobes frequently are involved, although the apices of the lungs usually are spared. The lesions are rather inconstant, and films, made at weekly intervals, show definite evidences of clearing in some areas and spreading in others. In very severe infections the massive lesions are dense and smooth and often may involve almost an entire lobe. Some lobes may show almost complete consolidation, while others contain only bronchopneumonic patches.

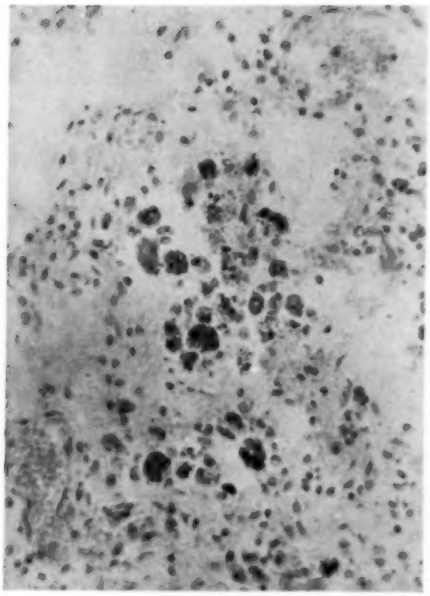

Fig. 1—Interstitial pneumonitis, dust cells in the alveolar lumen and wall × 270.

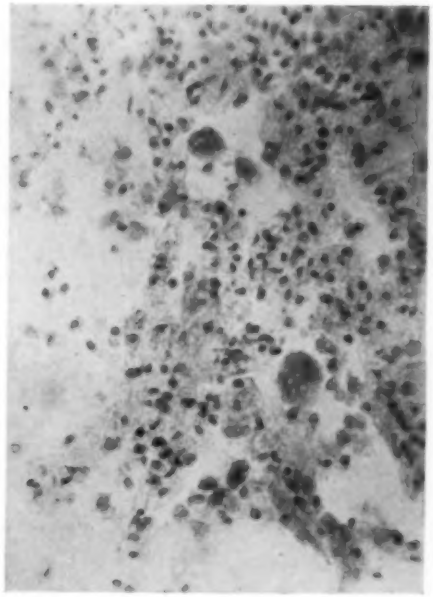

Fig. 2—Interstitial pneumonitis, giant cells present in the alveolar lumen × 270.

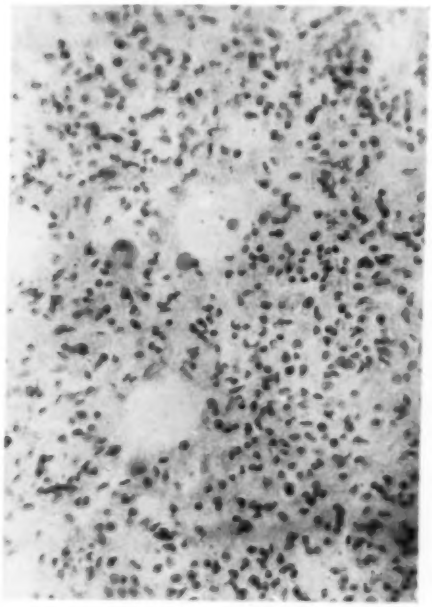

Fig. 3—Marked interstitial pneumonitis with focal emphysema × 270.

Fig. 4—Marked peribronchial fibrosis × 21.

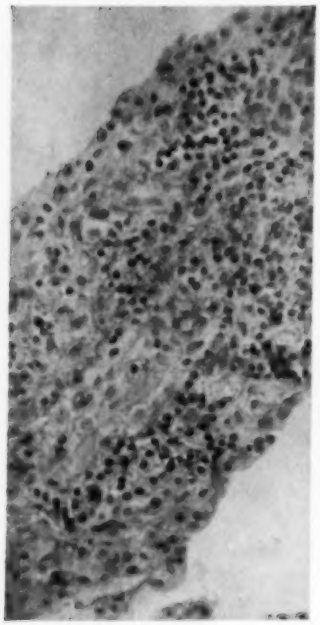

Fig. 5—Granulomatous infiltration of the pleura × 270.

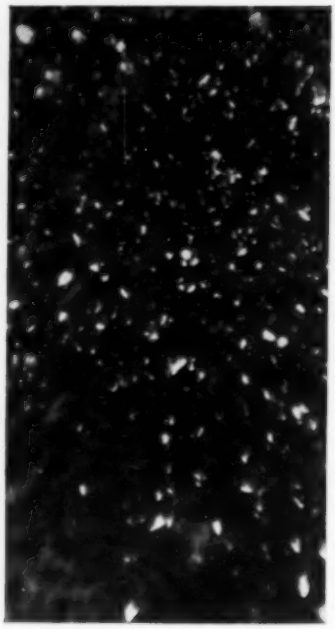

Fig. 6—Abundant doubly refractile silica particles in a focus of anthracosis × 450.

Fig. 7—Doubly refractile silica particles abundantly present in the carbon impregnated area, getting very scanty in the area undergoing fibrosis × 450.

GOYAL—*Pneumoconiosis in the Non-industrial Population of Rajasthan (p. 79).*

Fig. 1—Pleural effusion right base (21.5.57).

Fig. 2—Pleural effusion diminished. Beadlike opacities in the right cardiophrenic and perihilar area (28.6.57).

HEILIG AND ANDLEIGH—*Bronchopulmonary Moniliasis (p. 82).*

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The diagnosis of bronchopulmonary and pulmonary moniliasis is fraught with difficulties. Isolation of the organism, particularly if the patient has received antibiotics, is not conclusive. The organism frequently establishes itself in the bronchial mucous membranes as a secondary invader. A diagnosis must be made indirectly by excluding all other infectious and neoplastic conditions, that might affect the bronchial and parenchymal tissue, and directly by demonstrating repeatedly the organism in the sputum obtained preferably by bronchial aspiration. The diagnosis becomes firmly established by proving that the monilia grown is actually *Candida albicans,* which is almost always pathogenic.

An interesting case of pulmonary moniliasis diagnosed by culturing *Candida albicans* repeatedly from sputum, larynx and left nostril is being reported.

Case Report

Dr. N.A.C., 50, Parsee, male, fell ill in August, 1956, with a peculiar skin affection of the fingers, nails, palms and soles, fever upto 100°F and marked anorexia.

The patient had been leading a healthy life. He never took alcohol and stopped smoking two years ago when he was suffering from severe cramps in the calves at night which made sleep impossible inspite of sedatives. He was forced to walk about upto the early morning hours when the pain subsided and he could get some sound sleep. There was also a rise of temperature in the evening and an eruption of whitish spots on the palms. Niacin and ronicol were given for several weeks while the pain gradually subsided. At that time blood, including Kahn test, urine and stool, x-ray chest and E.C.G. were normal. Pulse in both the dorsalis pedis arteries was easily palpable. For the next two years the patient worked hard in a responsible position and felt perfectly well.

In August, 1956, the patient noticed an evening rise of temperature upto 100°F, a peculiar eruption on his palms and soles, changes on some of the nails, and a marked anorexia. In September, the liver was found enlarged 2½ fingers below the costal margin, firm, smooth but hardly tender. The spleen was not palpable. During September and October temperature rose every day from 98·4°F. in the morning to 100°F., sometimes 101°F in the evening; anti-malarial treatment had no effect at all.

The patient had lesions appearing in crops on both palms and soles and under the nails; they never showed ulceration or a weeping stage. Ichthyosiform or naevoid disturbances were not noted. The characteristic lesions consisted of a small vesicle embedded under the skin, pearly in colour, and just palpable when stroked. The lesions gradually became bigger and in the course of two weeks or so, gradually shrank and disappeared, leaving no scar or pigmentation. The vesicles were present along the sides and ventral aspects of the fingers, at similar sites on the toes and also on palms and soles. Other areas which became involved were legs and lower and middle third of the thighs. On palms and soles vesicles were present as if in sheets whereas on fingers isolated groups could be noted. Pigmentation of the extremities and the abdomen increased slowly.

The nails were involved in a characteristic way showing bluish perpendicular lines in the beginning and later on the free margin got slightly lifted and the nail at that site was now dull. The nail bed was never inflamed or painful. Later on, the nail split easily at the free margin; splitting, however, did not involve the entire nail. The diseased nail was gradually replaced by a normal one.

Examination of the skin scrapings after staining by the PAS method did not show presence of any fungi. Scrapings were cultured but did not yield the growth of any fungi. Fungicidal ointment, containing undecylenic acid, was used but it is not possible to say whether it had any influence on the dermatosis which took some weeks to subside.

On October 3, blood examination revealed a pronounced hyperchromic anaemia, leucopenia and relative eosinophilia. ESR was 25 mm./hour. The haematological findings of the next ten months are given in Table 1. Liver extract, injected thrice a week for one month, had only a temporary effect. On November 2, the blood report showed no improvement; ESR rose to 35 mm./hour. Aldehyde and antimony tests for kala-azar were negative. Fractional test meal showed achlorhydria. A sternal puncture showed a typical pancytopenia; all the myelogenic elements were uniformly reduced, pointing to an inhibition of all the haemopoietic mechanisms in the marrow. Therefore, the treatment was intensified; vit. B_{12}, 500 μg, alternating with a crude liver extract which was injected every day upto January 20, 1957. During this period the haemoglobin rose from 10·2 g. to 14·28 g., R.B.C. from 2·5 to 4·3 million, W.B.C. from 2,900 to 7,200 c./mm. and eosinophils decreased from 14 to 2 per cent. Even then liver and vitamin B_{12} injections were continued, although less frequently, upto the end of July, 1957. In addition he took ferrum succinate all the time.

During the month of October, nausea was felt in the morning, sometimes causing bilious vomiting. Because of the persisting enlargement and slight tenderness of the liver a cholangitis was suspected and a short course of mysteclin and felamine was given. Between October 28 and November 9, fever rose to 102°F. seven times, with normal or subnormal temperatures in the morning. While tetracyclin was taken, the temperature gradually came down to a maximum of 99·8°F. but after 10 g. suddenly shot up to 102°F. Now followed a long course of resochin (81 tablets in 4 weeks), during the second half of which the temperature did not reach 100°F. and the liver decreased in size.

This favourable course was interrupted by isolated rises to 101°F. on December 9 and 10, and to 100°F. on December 19. On both these occasions moist rales ap-

TABLE I—SHOWING THE FOLLOW-UP OF HAEMATOLOGICAL FINDINGS

Date	Haemoglobin		R.B.C. in million per c.mm.	W.B.C. per c.mm.	Poly.	Lympho.	Mono.	Eosino.	E.S.R. mm./hr.
	%	g. %			Per cent				
3-10-56	58	9·86	2·41	2900	58	26	2	14	25
11-10-56	60	10·2	2·40	2600	58	24	2	16	—
15-10-56	9	9·75	3·05	2600	56	32	4	8	—
19-10-56	—	10·2	3·05	2800	—	—	—	—	—
24-10-56	—	9·8	3·10	4600	—	—	—	—	—
31-10-56	—	8·6	2·18	3000	—	—	—	—	—
2-11-56	60	10·2	2·50	2900	51	38	4	7	85
14-11-56	62	10·54	2·88	5400	56	30	4	10	—
23-11-56	68	11·56	2·90	6000	54	35	6	5	—
9-12-56	80	13·6	3·42	8200	70	25	2	3	—
23-12-56	85	14·45	3·46	8000	62	33	4	1	—
6- 1-57	80	13·6	3·70	7000	77	18	2	3	—
20- 1-57	84	14·28	4·30	7200	72	25	1	2	—
10- 2-57	85	14·45	4·28	8200	70	27	2	1	—
18- 3-57	85	14·45	4·43	6500	75	20	3	2	—
12- 4-57	84	14·28	4·48	8000	76	16	5	3	—
12- 5-57	75	12·75	4·27	8000	71	24	1	4	—
26- 5-57	70	11·29	3·92	8400	75	18	1	6	130
17- 6-57	—	—	—	11000	85	11	2	2	—
29- 6-57	—	11·9	4·00	8000	80	17	2	1	122
30- 6-57	70	11·9	4·00	9000	80	15	1	4	125
14- 7-57	75	12·75	3·99	7600	65	33	—	2	82
28- 7-57	80	13·6	4·2	8700	62	32	2	4	54
7- 9-57	82·35	14	4·52	6600	75	21	1	3	60
28- 9-57	—	—	—	—	—	—	—	—	27

Malarial parasites were never found in any examination of the blood films.
* Reticulolytic count was 9·8 per cent on 15-10-56 and 9 per cent on both 19-10-56 and 24-10-56.

peared in the basal parts of the lungs. At this time as well as twice before (Oct. and Nov.) x-ray of the chest failed to show any pathological changes. Stool examination was negative in every respect. Urine culture remained sterile and sputum on microscopic examination showed no abnormality. On December 21 the patient became afebrile and remained so continuously upto April, 1957. In the middle of April he complained of some discomfort in the liver region accompanied by slight rises of temperature not exceeding 99·4°F. As everything else had been tried unsuccessfully to reduce the size of the liver, a course of 10 gr. emetine was given. By the end of the emetine course the liver enlargement had disappeared completely, a finding confirmed by fluoroscopy. The temperature became normal, only to reappear after about one week, along with some dry cough in the morning.

At the right lung base a few rales and rhonchi appeared, followed soon by a quickly increasing pleural effusion (Fig. 1, *vide* Plate). About one week later 10 ounces of a slightly, turbid exudate was removed (28-5-57); sp. gravity 1018; Rivalta positive; the centrifuged deposit contained 90 per cent lymphocytes and a good many fresh erythrocytes. Culture for pyogenic micro-organisms as well as for acid-fast bacilli remained sterile; guinea-pig inoculation negative. As soon as the effusion was absorbed, the right lung was full with crackling moist rales and rhonchi from the base upto the scapular angle. Diminished breath sounds etc. corresponded to the thickened pleura, visualised in the weekly repeated x-ray examinations. This was accompanied by severe bouts of cough which usually were unproductive but at irregular intervals some mucoid sputum was brought up with glassy granules in it.

After 20 g. streptomycin and the corresponding amount of isoniazid the temperature, which during this period daily varied between 99° and 101°F., suddenly shot up to 104°, accompanied by nausea and severe discomfort in the right hypochondrium (17-6-57). A short antimalarial course was followed by a series of achromycin injections, 200 mg. a day for ten days and 7 g. tetracyn S.F. within 12 days. The temperature which seemed to settle down for a few days shot up again to 102°F. (June 30). X-ray showed some bead like opacities in the right base and perihilar region (Fig. 2, *vide* Plate). The sputum was again examined for mycotic infection, and this time a dense growth of monilia was obtained not only from the sputum but also from a sublaryngeal swab and from the left nostril, where the patient had felt for several weeks some soreness along with burning of the

eyes. Further cultural analysis left no doubt that this fungus was *Candida albicans*. Even before this was established, treatment with mycostatin was started (July 1); 2 tablets, 500,000 units each, 3 times a day changed the picture over night. The fever became lower every day and after four days the temperature touched normal and remained so throughout for the last eleven weeks. The nasal sore healed quickly with mycostatin cream. Cough and expectoration, nausea and discomfort, diminished day by day. ESR came down from 125/mm. hour to 54 by July 25. Mycostatin was then reduced to 4 tablets a day, a dosage maintained for more than ten weeks. The rales in the right lung diminished very slowly. Tommograms on August 5, showed residues of pleural thickening but no changes in the pulmonary parenchyma; sputum culture for fungi showed no growth. ESR on 28-9-57 was 27 mm./hour.

Disussion

It is hardly possible to bring all the pathological processes observed in this case in the course of one year under a single diagnosis. It is very probable that the skin affection at the beginning of illness was of mycotic origin inspite of the negative cultural findings, which might be explained by the suppressing effect of the fungicidal ointment, that had been used before the scrapings were taken. The origin of the pancytopenic hyperchromic anaemia which responded well to huge doses of vitamin B_{12}, crude liver and iron remains obscure. The liver enlargement responded so promptly to emetine that its amoebic origin can be hardly doubted. The attacks of febrile bronchitis which started four months after the onset of illness (December 9) before a substantial amount of antibiotics had been given, most probably marked the begginning of the bronchopulmonary mycotic process; the way of infection might be traced from skin to nostril to bronchi and pleura.

Although numerous reports of pulmonary moniliasis have been published all over the world, we know of only two such reports from India. Kushdeo Singh (1950) described 3 cases and Kasliwal and Andleigh (1954) one case. The rarity of such cases in this country is probably due to the fact that antibiotics, especially those of the broad spectrum type, are used here much less frequently, in much smaller doses and for much shorter periods than in Western countries. In this connection the question arises whether in the present case the mycotic infection might have been favoured or facilitated by the use of tetracyclin; we do not think that this is probable because it was only used in combination with heavy doses of vitamins (Tetracyn S.F; crude liver extract and multivitamins); but the possibility cannot be denied that the antibiotics made it easier for the fungus to penetrate into the bronchial tree and to affect the pleura. The beneficial effect of nystatin on mycotic affections of the lung has been reported by a few authors (Cardelle, 1955; Stewart, 1956), but was denied by others (Childs, 1956). We have no doubt that in this case the surprisingly quick and complete turn for the better has been due entirely to nystatin.

Summary

A case has been reported who in the course of a protracted febrile disease, characterised by a dermatosis of hands and feet, pancytopenia and liver enlargement, developed a bronchopulmonary moniliasis with pleural effusion. All the bronchopulmo-pleural manifestations and the fever were quickly controlled by nystatin.

Acknowledgment

Thanks are due to Dr. P. S. Mathur for the dermatological report and to Messrs. Squibb-Sarabhai Chemicals, Baroda, who generously supplied "Mycostatin" (nystatin) for mycological investigations.

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Addendum

For the last ten weeks ended 10-12-57 treatment has been completely discontinued. The patient is doing his normal work and has no complaints, except for a slight unproductive cough in the morning. His temperature remained normal throughout. On 10-12-57, his E.S.R. was 10 mm/½ hr. and 25 mm/1 hr.

PRACTITIONERS' SERIES

COMA—CAUSES AND DIAGNOSIS

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Unconsciousness may be of various degrees, viz., (i) lethargy or drowsiness, simultating normal sleep, (ii) stupor—a semiconscious state from which the patient can be roused and (iii) coma—complete loss of consciousness in which the patient does not respond to any sensory stimulus.

In deep coma, the pupils are dilated, corneal reflex and deep reflexes are apt to be lost.

'Typhoid state' or 'coma vigil' are terms which are used for semiconscious states with severe toxaemia and asthenia ; the patient lying with half-open eyes and muttering delirium, commonly seen in bacterial infections, e.g., typhoid fever.

CAUSES

The common causes of coma are :

1. Cerebral vascular lesions (apoplexy)—haemorrhage, thrombosis or embolism. 2. Epilepsy. 3. Uraemia. 4. Diabetic ketosis. 5. Head injury. 6. Cerebral malaria. 7. Poisoning by alcohol, opium and other narcotic drugs. 8. Meningitis. 9. Severe toxaemia associated with generalised bacterial infection. 10. Encephalitis lethargica. 11. Hysteria. 12. Hepatic failure (cholaemia).

INVESTIGATIONS AND DIAGNOSIS

Diagnosis of the cause of coma in a patient found unconscious, when no previous history or the history of onset is available, may be one of the most difficult jobs. Various investigations have to be done before any conclusion is reached. A systematic approach is, therefore, essential in the examination of such a patient to guard against any omissions.

I. HISTORY :

Age—Causes of coma in different age groups are different. While causes like cerebral malaria, head injury, cerebrospinal meningitis, drug poisoning, and toxaemia of infections are common in all ages, there are certain causes which are peculiar to particular age-groups. These are—

Children—Tuberculous meningitis, epilepsy, intracranial complications from middle ear suppuration, acute nephritis.

Youths—Suicidal poisoning (opium or barbiturates), alcoholism, hysteria, syphilitic cerebral thrombosis, chronic nephritis with uraemia.

Middle age—Cerebral haemorrhage or thrombosis, diabetic coma.

Old people—Cerebral thrombosis, uraemia.

Sex—In females toxaemias of pregnancy and eclampsia are special causes during pregnancy, and hysteria is commoner than in men.

Occupation—Workers handling organic lead compounds, specially tetraethyl lead which is mixed with petrol for internal combustion engines, as the cleaners of petrol tanks, may suffer from acute cerebral symptoms with unconsciousness, delirium, etc. Carbon monoxide poisoning in persons working with slow burning fire in closed or ill-ventilated rooms.

History of onset—Causes can be divided into several groups according to the mode of onset—

(a) Sudden onset in apparently healthy individuals without any previous symptoms or prodromal symptoms: as in cerebral haemorrhage or embolism and epilepsy.

(b) Gradual loss of consciousness following prodromal manifestations like, headache, vomiting, paraesthesia, nervous irritability, muscular twitching or weakness, aphasia, etc,: as in uraemia, cerebral thrombosis and diabetic coma.

(c) Loss of consciousness in the course of, or at or shortly after the onset of an acute infectious fever as in meningitis, malaria, typhoid fever, apical pneumonia, encephalitis, etc.

(d) History of injury or evidence of accidental or intentional taking of poisons.

(e) History of short periods of unconsciousness with or without convulsions and apparent freedom from symptoms between attacks as in epilepsy, vasovagal attacks and other vascular syncopes as Adams-Stokes syndrome, etc.

History of past illness—Enquiries should be made for the previous history of hypertension, acute or subacute or chronic nephritis, diabetes, epilepsy, valvular heart disease, pulmonary suppuration, otitis media, administration of narcotic drugs, syphilis, insulin injections.

Family history—History of hypertension and apoplexy in the family is an important point to note as these often affect several members of the family.

Personal history—Habitual addiction to intoxicants should be elicited. An enquiry into the mental and emotional constitution is also helpful in pointing towards possibility of hysteria.

II. PHYSICAL EXAMINATION :

In patients who are picked up unconscious from the street or are found unconscious without any previous history, one has to depend entirely on physical examination and other investigations for diagnosis. The circumstances under which such patients are found are also greatly important in doubtful cases. The physical examination should include the following.

GENERAL EXAMINATION

General examination is done to determine the build, nourishment and general appearance of the patient.

In apparently healthy and well nourished and well built individuals, cerebral haemorrhage or thrombosis, head injury or poisoning should be thought of ; whereas in emaciated and anaemic individuals diabetic coma and uraemia are to be considered. Signs of severe illness and toxaemia would indicate infections.

Marked cyanosis is characteristic of opium poisoning and cherry-red colour of carbon monoxide poisoning. Deep jaundice will be present in hepatic failure.

Temperature—Hyperpyrexia with unconsciousness may occur in heat-stroke, cerebral malaria and pontine haemorrhage. In some cases of typhoid fever and cerebrospinal meningitis also hyperpyrexia and unconsciousness may occur.

Respiration—Extreme slow respiration is characteristic of opium poisoning. Stertorous breathing is common in deep coma due to apoplexy.

Deep and hurried breathing is characteristic of acidosis associated with diabetic coma and uraemia. Breathing with a hissing noise is characteristic of uraemia. Sighing or sobbing respiration is characteristic of hysteria. Irregular or periodic breathing may be seen in meningitis. Cheyne-Stokes respiration may occur in many conditions with coma and is not pathognomonic of any. Biot's breathing or alternate apnoea and hyperpnoea is said to be pathognomonic of meningitis.

Besides noting the character of respiration, any peculiar odour in the breath should be noted. Obvious odour of alcohol as well as opium may be diagnostic. Foul ammoniacal smell or urinous smell is characteristic of uraemia and sweet odour of acetone may be obtained in diabetic coma. A foul mousey or fishy smell near the patient is often present in hepatic coma.

Pulse—Conditions associated with increased intracranial pressure may cause a slow pulse. Unusually slow pulse, as in heart block, if found in cases of repeated momentary attacks of loss of consciousness is diagnostic of Adams-Stokes syndrome. Obvious high tension pulse should be noted as an evidence of apoplexy.

The condition of the vessel wall should also be noted. Obviously sclerosed brachial and radial arteries will indicate the possibility of similar sclerosis in cerebral vessels with consequent chances of rupture or thrombosis.

Head, face and neck—Any sign of injury to the scalp should be noted. This may be associated with intracranial haemorrhage or injury. Old scars in the face, lips, tongue due to falls during previous epileptic attacks are to be looked for. Any discharge from the ears may indicate the possibility of middle ear infection spreading inside the cranium. In head injuries affecting the base of the skull discharge of blood-stained fluid may occur through the ear or nose.

Any retraction of the head backwards or rigidity of the neck resisting flexion should be looked for as signs of meningitis.

Eyes—Presence of conjugate deviation of the eyes indicates irritative lesions of the cerebrum as in early stage of vascular lesions, epilepsy and encephalitis. In case of vascular lesions this may be helpful in indicating the side of the lesion.

Forcible contraction of the orbicularis oculi resisting attempts to open the eyes is characteristic of hysteria.

The condition of the pupils and their reaction to light should be noted. In all deep coma both the pupils may be widely dilated and insensitive to light. Unequal pupils may be met with in meningitis, head injury with intracranial haemorrhage, encephalitis. Pin-point contracted pupils are characteristic of opium poisoning and pontine haemorrhage.

The intraocular tension should be noted also ; as in diabetic coma it is much reduced, as shown by extreme softness of the eyeball.

An obvious subconjunctival haemorrhage may indicate fracture of the anterior fossa of the skull.

Face—An asymmetry between the two sides of the face indicated by drooping of the angle of the mouth on one side and loss of nasolabial furrow specially with unilateral puffing out of the cheek with respiration should be noted as evidence of facial paralysis which is commonly associated with a hemiplegia in vascular lesions of the brain.

Tongue, teeth and gums—A dry and red tongue is common in diabetic coma or toxaemias. Dry, coated or furred tongue is seen in uraemia. Ulcers in the mouth, bleeding gums with loose teeth and foul ammoniacal odour are characteristic of uraemia.

SPECIAL EXAMINATIONS :

Nervous system—The examination of the nervous system is necessarily restricted to examination for objective signs which does not require the co-operation of the patient. Signs of any focal lesion in the central nervous system have to be looked for, of which the most important are the signs of unilateral paralysis. These will be evident from the following :

(*a*) Unilateral twitchings or convulsions, or absence of movement on one side when the patient is restless. In light coma, strong painful stimuli may elicit movement more on one side.

(*b*) Unilateral facial paralysis.

(*c*) Limpness or spasticity more on one side.

(*d*) Difference in deep reflexes on either side.

(*e*) Unilateral Babinski's sign. In deep coma, this sign may be positive in both the sides.

Signs of obvious hemiplegia strongly indicate a cerebral vascular lesion.

Cardiovascular system—Evidence of hypertension, cardiac enlargement with hypertrophy of left ventricle, arterial thickening are presumptive of cerebral vascular lesions.

Pulse, heart and blood pressure should be examined according to the routine laid down for examination of this system. Endocarditis, acute or chronic, may be associated with cerebral embolism and should be carefully looked for.

Respiratory system—Routine examination of this system should be carried out. Apical pneumonia in asthenic patients may be associated with toxic cerebral symptoms with coma. In cases of pulmonary suppuration a septic embolism may occur in the brain. In deep coma, pulmonary oedema frequently develops as a terminal complication. Hypostatic congestion or pneumonic consolidation may also complicate comatose states of long duration.

Abdomen—Routine examination for the detection of enlarged spleen, liver, abdominal masses, peritoneal fluid, etc., should be done.

A palpable spleen may indicate malaria but spleen may not be enlarged in very early cases.

Examination of the fundus of the eye—This is of value in suspected cases of uraemia, nephritic or from malignant hypertension. Vascular changes, papilloedema, choroidal tubercles, etc., are also valuable findings in doubtful cases.

Special investigations—From the above examinations and history a provisional diagnosis may be suggested and further appropriate investigations are then done for confirmation of the diagnosis. One or more of the following will be necessary for this purpose. As to which examination should be done first will be suggested by the provisional diagnosis.

(*a*) Total and differential blood count and blood slide for malaria parasites.

(*b*) Lumbar puncture.

(*c*) Catheterisation of the bladder and examination of urine.

(*d*) Blood examination to determine, sugar, urea, N.P.N. concentration in blood.

(*e*) Stomach wash and examination of the washings for poisons.

CASE NOTE

LAURENCE-MOON-BIEDL SYNDROME

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It is not infrequent to come across patients presenting themselves in the out-patient ophthalmic clinics with a history of night blindness and mental retardation. On detailed examination, some of these cases may turn out to be suffering from Laurence-Moon-Biedl syndrome. A typical case of Laurence-Moon-Biedl syndrome has the pentad of the syndrome, viz., obesity, hypogenitalism, polydactyly, mental retardation and retinal changes of the type of retinitis pigmentosa.

In addition to these classical features, nystagmus, squint, optic atrophy, syndactyly, oxycephaly, microcephaly, genu valgum and other skeletal lesions may be present. The rate of consanguinity is high in the affected families. The syndrome is of the recessive Mandelian type.

CASE REPORTS

FAMILY I :

In one family two male children were affected out of five.

Case 1—A male child 12 years old, height 4′ 9″, weight 106 lb., moderately obese in appearance, had polydactyly, six digits to each of his hands (Fig. 1) and feet, the supernumerary digits being the little toe and little finger. He had gynaecomastia, hypogenitalism, was mentally dull, peevish and inclined to cry without provocation. No other congenital defects were seen. All the routine investigations were normal. The vision in the right eye was C.F. 1 foot ; in the left eye, C.F. 2 feet. Fundus oculi showed in both eyes, pigmentary degeneration with consecutive optic atrophy. All routine investions were normal.

Case 2—The patient, younger brother of Case 1, aged 3 years, height 4′ 5″, weight 62 lb., not obese, was more intelligent than the elder

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FIG. 1 (FAMILY 1, CASE 1)

brother and had hypogenitalism and polydactyly (Fig. 2). There were 6 fingers in each hand and

FIG. 2 (FAMILY 1, CASE 2)

6 toes in the right foot. The left foot had 5 toes only. The vision in the right eye was 3 feet and in left eye was 2 feet. The fundus oculi showed pigmentary degeneration of the retina and macula, with consecutive optic atrophy. All the routine investigations were normal.

FAMILY II :

The second family consisted of 3 children of whom 2 were affected—a male and a female child.

Case 3—Female child, 11 years old, obese in appearance, with weight 102 lb. and height 4′ 1″ was mentally dull and was not sent to school. She could not speak till her eighth year and could not walk till her third year. She had night blindness. She had six digits in each hand (Fig. 3) and foot. Her hearing was normal. She had no other congenital defect. Her vision in each eye

FIG. 3 (FAMILY 2, CASE 3)

was 6/18. Her fundus showed minimal pigmentary changes in the periphery of the retina, with consecutive optic atrophy.

Case 4—Male child, aged 7 years with height 3′ 8″ and weight 46 lb. was mentally dull and not yet attending school. He started walking from the age of three and speaking from the fifth year. He was not obese. He had polydactyly with 6 digits in each hand (Fig. 4) and foot. The vision

FIG. 4 (FAMILY 2, CASE 4)

in the right eye was 10 feet and in left eye 5 feet. The fundus showed mild pigmentary changes in the retina, with consecutive optic atrophy.

DISCUSSION

The four cases reported occurred in two families (two in each family). In the case of the second family, the parents were already related being first cousins, proving consanguinity which is a common feature in the families where this syndrome is met with. Two of these cases were obese, whereas the other two were not so. One case had 23 digits, whereas the others had 24 digits. The disease did not manifest itself in the members of the families for three previous generations as stated by the parents. This probably proves that the incidence should have been of recessive type in these series.

ACKNOWLEDGMENT

We thank Dr. P. Ramchander, Superintendent, Sarojini Devi Hospital, for permission to report the cases.

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CALCUTTA, FEBRUARY 1, 1958

PAY, STATUS AND REMUNERATION OF MEDICAL MEN

Expediency can never be a substitute for principles. While there is a lot of talk about principles, little is practised. A servant is certainly worthy of his hire.

Emoluments in services should be governed by a principle and a uniform application of it should be made in all departments of services under the government. This principle should be based mainly on an accurate assessment of the qualification of the employee, educational and otherwise, and his capacity to shoulder responsibilities. Any deviation from this is likely to give rise to dissatisfaction amongst the staff concerned.

The IAS, IFS and the IPS men are given by our government, salaries commensurate with the nature of work they have to do. But it is a pity that medical men in service under the government are accorded a different treatment. Their salaries are usually meagre and in some cases ridiculously low *vis-à-vis* other comparable services and moreover their status is not properly recognised.

Leaving aside the local bodies where doctors are being offered Rs. 100-160/- per month as starting salary, even the Central Government offer them as low a salary as Rs. 160/- in some institutions under their control, the maximum rising to Rs. 260/- only. The pay granted to Assistant Surgeons Grade 1, who are medical graduates, ranges between Rs. 260-500/- per month at the most. Medical men in many cases, do not enjoy the status and privileges of gazetted rank.

What is the reason behind this differential treatment and lack of consideration? A qualified doctor comes to his work with years of concentrated study and disciplined schooling behind him. He has to undergo training both theoretical and practical, for about six years in a medical institution. Again to acquire post-graduate qualification he has to have more intensive training and study for a further period.

In IAS and other similar services, graduates having a good record of university education are recruited. In the medical line also, only first class science students are admitted in the colleges for study and training. And when a student comes out as a fully qualified medical graduate, after an arduous course of study, can he not be reckoned as equally useful as the IAS and IPS men in the services? But what we find in the present government is that the talent of medical men is not at all taken into account, nor is the value of their services in rendering medical care to the people properly estimated.

Doctors have to do a very responsible kind of work. To be in charge of the well-being of a patient suffering from a serious disease, devoting his whole attention and skill to save his life, is a responsibility, the like of which no member of any other service has to shoulder.

Again he has to work long hours every day. His work is often strenuous and in a busy department it may keep him occupied beyond his usual hours, and whenever an emergency occurs in the night even, he gets out of bed and attends to it. This happens very often.

The Indian Medical Association recently has submitted a memorandum to the Pay Commission wherein certain recommendations have been made for acceptance of the Commission. During the recent meetings of the Association held at Bangalore, it has also been decided that these recommendations meant for the Central Government, should also hold good for all categories of medical services under the State Governments. The recommendations mainly relate to the following:

1. All medical men in government service should enjoy a gazetted rank. This means that they should be given an honourable position in the service.

2. The basic grade of medical officers should be Rs. 350-950/- per month and the remuneration for senior officers Rs. 800-1,800/-. There should be selection grades of Rs. 1,800-2,250/- and special posts of Rs. 2,000-3,000/- per month, for administrative and other departmental heads.

3. As the medical licentiates' course has been stopped in almost all the States, it is desirable that in service the licentiates should also be appointed on the grade Rs. 350-950/-. In case of professors and senior specialists of medical colleges under the government, the Indian Medical Association is of considered opinion that if the government intends to appoint any of them on a whole-time basis, such personnel should be appointed on the grades, Rs. 1,800-2,250/- and Rs. 2,000-3,000/-, the starting salary depending on the entrant's age, qualifications and teaching experience in the subject. If such medical men are on call for 24 hours of the day and night, they should be entitled to extra remuneration—either a consolidated amount (say, 25 per cent of the pay) or on the basis of

fee-for-service rendered, as may be mutually agreed between the government and the Association. In this connection, the Association wishes to stress that, in the best interests of the country and medical science, there should not be any difference in status and remuneration between the administrative heads on the one hand and the professors, senior specialists and senior research workers on the other, to avoid well-trained and experienced scientific personnel giving up scientific work and hankering after administrative posts.

For the same reasons stated above, the readers and assistant professors of medical colleges under the government should be appointed on the grade Rs. 800-1,800/- with similar privileges as the professors, if any of these appointments are made on a whole-time basis.

Apart from the question of payment of adequate remuneration to the professorial and other teaching staff, the association felt that the strength of medical and ancillary personnel should be considerably increased in medical colleges and their attached hospitals to cope with the ever-increasing work and overcrowding in the out-patient and in-patient departments of such hospitals.

The Association feels that if the government are not in a position to offer the scales of salaries and allowances suggested by the Association, it would perhaps be wiser for the government to try to solve the above difficulties by employing specialists and practitioners on a part-time basis on the following minimum remunerations. For one session a week Rs. 125/- per month, for two sessions each week Rs. 200/- p.m., for three sessions Rs. 250/- p.m., for four Rs. 300/- p.m., for five Rs. 350/- p.m. and for six sessions a week Rs. 400/- per month. Part-time specialists should not be asked to work for more than three hours in a session. If the part-time specialists are required to work extra for any professional work, they should also be entitled to extra remuneration (say, Rs. 20/- per visit during day or Rs. 40/- at night). Part-time specialists and practitioners should also be given the proper status, leave and other facilities *vis-à-vis* their whole-time colleagues in government service. All senior specialists attached to the hospitals of medical colleges having about 15 years' teaching experience in the subjects concerned should be designated as professors and junior specialists, associate professors, readers, assistant professors and lecturers in accordance with their qualifications and teaching experience. There should not be any discrimination between the whole-time and the part-time or honorary specialists of the hospitals, as regards status, designation and facilities. Whenever general practitioners shall be appointed on a part-time basis their remuneration may be fixed at 50 per cent of the remuneration fixed for specialists.

The I.M.A. feels that those doctors in government service who are appointed on a whole-time basis for medical relief work should not have the privilege of private practice as in case of public health officers. But, if medical officers are employed on whole-time basis, and their private practice is stopped, their grades of salaries should be adequate as indicated before. The State Governments should consult the State Branches of the Indian Medical Association to decide which posts should be made whole-time and non-practising and which posts should have the privilege of practice in the interests of the people. This question will also depend on the financial condition of the States concerned. But the financial difficulties must not be put forward for lowering the pay scales of whole-time medical men. Special allowances should also be given to doctors with special qualifications or training or experience, and to doctors working in rural areas and areas without any amenities. All other allowances, e.g., city allowance, compensatory allowance, house rent allowance, dearness allowance, etc., and other facilities like medical aid, provident fund, pension, gratuity, etc., should be admissible as in case of class I officers.

Whenever medical men are expected to carry on professional work beyond duty hours (beyond 36 hours a week in case of whole-time officers), they should be entitled to additional pay or allowance—either a consolidated amount or on the basis of fee-for-service rendered.

In view of the medical man usually joining service at a later age (26-29 years in place of 21-24 years in case of IAS etc.) than an officer in the IAS, a higher initial starting salary (at least 4 increments) in the basic grade should be given ; such a practice is followed in the Armed Forces Medical Service. On the same ground, the age of retirement in case of medical men should be 60 years.

The recommendations of the I.M.A. have been prepared by an actual study of the position of medical men in government service and the acceptance of these recommendations[1], it is believed, will remove the long-felt grievances of medical men working under government. Doctors being responsible persons do not resort to trade union methods (strikes, etc.). But this fact should not be utilised for continuance of exploitation of qualified medical men.

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[1] *J. Indian M. A.*, **29** : 486, 1957.

CURRENT MEDICAL LITERATURE

Marfan's Syndrome

PAPPAS AND OTHERS (*Am. J. Med.*, **23** : 426, 1957) from the Hahnemann Medical College and Hospital of Philadelphia and Bailey Thoracic Clinic, Philadelphia, write that Marfan's syndrome is characterized clinically by an abnormal lengthening and thinning of the fingers and toes, as well as of the long bones, a prominent long palate, relaxation of the ligaments, loss of subcutaneous fat, poorly developed hypotonic musculature, asthenic body build, a dolichocephalic head with old-appearing features, kyphosis, funnel shaped chest, and subluxation of the lens of the eye. Cardiac anomalies (septal defect, valvular lesions or aneurysm of the aorta) and pulmonary anomalies (abnormal lobation and congenital cystic disease) are not infrequent.

Three cases of arachnodactyly complicated by aneurysm of the aorta are presented. In two of these cases the autopsy findings are described. Autopsy showed a tear in the wall of the aorta, without dissection in one of the patients. Generalized aneurysmal dilatation of the aorta was present in all three cases, with aortic insufficiency.

Aneurysm of the aorta is a frequent occurrence in patients with arachnodactyly who reach adulthood. Dissection of the aorta may be responsible for early death in these patients. Generalized dilatation of the aorta may lead to aortic insufficiency and death.

Fate of Bile-Pigment in Cholera

BASU MALLICK AND OTHERS (*Brit. M. J.*, **2** : 801, 1957) from the Department of Pathology, Nilratan Sarcar Medical College, Calcutta, observe :

Tests of the stools of cholera patients in the stage of purging showed that in most of them there was no detectable amount of urobilinogen.

The serum alkaline phosphatase level and the thymol turbidity of these patients remain within the normal range.

Evidence is given which suggests that there is no obstruction to the flow of bile into the gut in cholera, and some possible explanations for the absence of faecal urobilinogen in these patients are discussed.

Although there is a slight rise in serum bilirubin in these patients there is no evidence of any haemolysis, nor is there any evidence of the depression of hepatic function.

The haemoconcentration that occurs in cholera entails a greater osmotic work for the liver cells to pick up bilirubin from the blood for secretion into the bile capillary. This may be the cause of diminished secretion of bile and the slight rise of serum bilirubin concentration that have been observed in cholera patients.

Hyperuricaemia and Treatment of Acute Leukaemia

GOLD AND FRITZ (*Ann. Int. Med.*, **47** : 428, 1957) from the General Med. Branch, Acute Leukaemia Section, National Cancer Institute, Bethesda, Maryland, in presenting three episodes of hyperuricaemia and uraemia secondary to antimetabolite and steroid therapy of acute lymphocytic leukaemia observe that in every case of acute leukaemia the possibility of an acute uraemic episode concomitant with antileukaemic therapy should be considered. The risk is apparently greatest in patients with acute lymphocytic leukaemia with a high white blood count.

The following plan is suggested to ameliorate or prevent such an occurrence :

Urinalysis, blood urea nitrogen and uric acid determinations prior to therapy should be obtained. If these are abnormal, further evaluation of renal status should be undertaken.

Fluids should be forced during treatment if marked uricosuria is present, and alkali administered by mouth to prevent precipitation of uric acid crystals.

The levels of serum uric acid should also be closely observed during treatment.

Trial of Tranquillizing Drugs

RAYMONDS AND OTHERS (*Brit. M. J.*, **2** : 63, 1957) from the Department of Psychiatry, St. George's Hospital, London, in reporting on their experiences on the trial of five tranquillizing drugs (amylobarbitone, benactyzine, chlorpromazine, meprobamate and sedaltine) in psychoneurosis observe :

A placebo was also included. The patients were psychoneurotic out-patients selected as having a tension component in the symptomatology. Each patient received each drug for two weeks, being asked to record daily his assessment of the drug on a five-point scale.

Of 79 patients included in the trial, the records of four were faulty, and 24 defaulted. Reasons are given for supposing that the loss was probably random.

Only the chief pharmacist knew which drug was being given, and a randomized design was used. The scores based on the patients' assessments did not vary according to the particular period during the 12 weeks when the drug was administered. The scores were independent of the drug previously given. In terms of the patients' judgments the average score for the placebo was close to a nil response, neither good nor bad. The average score for amylobarbitone was highly significantly superior to that for the placebo. There was no significant difference between the other four drugs and the placebo. —*Author's summary.*

Treatment of Myasthenia Gravis

SCHWAB AND OTHERS (*J.A.M.A.*, **165** : 671, 1957) from the Myasthenia Gravis Clinics, Massachusetts General Hospital, Mount Senai Hospital and Indiana University Medical Centre, observe :

Prolonged-action or slow-release tablets of neostigmine bromide, containing three regular doses of 15 mg. each, and a half-strength form, containing three doses of 7·5 mg. each, have been tried in the treatment of 85 patients with myasthenia gravis. Prolonged-action or slow-release tablets of Mestinon bromide, containing three regular doses of 60 mg. each, and a half-strength form, containing three doses of 30 mg. each, were tried in treating 109 patients with myasthenia gravis. In the

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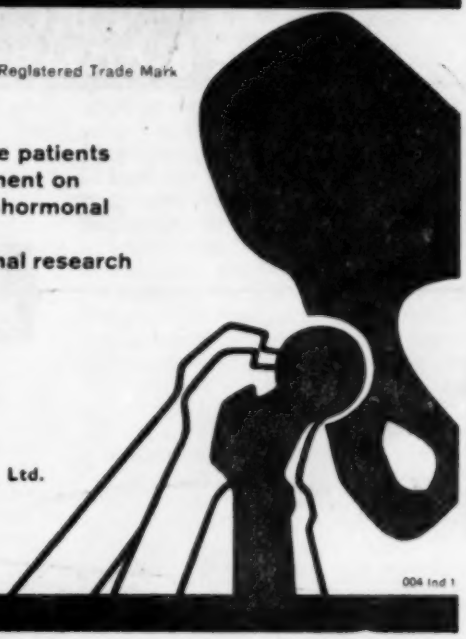

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case of the neostigmine bromide tablets, 54 of the 85 patients have found them superior to their regular medication and are still taking them. In the case of Mestinon bromide tablets 82 of the 109 patients still continue to take these tablets. The greatest value of this type of medication is in eliminating the need of doses during the sleeping hours.

Benzathine Penicillin G in Prevention of Streptococci Infection

MORRIS AND RAMMELKAMP (*J.A.M.A.*, **165**: 662, 1957) from the Streptococcal Disease Laboratory, Francis E. Warren Air Force Base, Wyoming, write that benzathine penicillin G was administered as a single intramuscular injection in doses of 1,200,000, 600,000 and 300,000 units to 246, 255, and 240 men, respectively, during an epidemic of streptococcic pharyngitis in a military population. The duration of protection provided by each dose as determined by the development of exudative pharyngitis due to group A streptococci was six to seven weeks, four to five weeks, and one to two weeks respectively. All three dosage regimens were equally effective in eradicating streptococci from carriers. The data indicate that benzathine penicillin G is a valuable agent in the control of streptococci disease.

Reactions from Multiple Injections of Benzathine Penicillin G

SHERWOOD AND OTHERS (*J.A.M.A.*, **165**: 667, 1957) write that a comparison was made between two dosage plans for the intramuscular administration of benzathine penicillin G as prophylaxis against rheumatic fever, nephritis, and streptococcic infections in the armed forces. One group of 1,567 men received 600,000 units every four weeks; the other group, of 1,708 men, received 900,000 units every six weeks. No reactions of the anaphylactoid type occurred, but during the six months of the study 16 men were hospitalized for urticaria, angioneurotic oedema, or joint symptoms; 11 were hospitalized after the first injection, 4 after the second, and 1 after the third. Most (11) of these severer reactions occurred after the injection of 900,000 units, but the probability of reaction to subsequent doses decreased in both groups, and prolonging the interval between injections did not affect the probability of a reaction. Because few streptococcic infections were seen, this study did not test the effectiveness of the prophylaxis, but it did demonstrate the safety and feasibility of administering benzathine penicillin G in this way.

Carbarsone Toxicity

RADKE AND BARODDY (*Ann. Int. Med.* **47**: 418, 1957) of the Department of Medicine, Fitzsimons Army Hospital, Denver, Colorado, from a review of the literature and report of 45 cases observe:

Toxicity to carbarsone does occur. The reactions are usually heralded by gastrointestinal symptoms of epigastric burning, right upper quadrant pain and tenderness, diarrhoea, nausea and vomiting, which may progress to exfoliative dermatitis, central nervous system involvement or hepatic dysfunction.

The mechanisms of toxicity appear to be hypersensitivity, direct effect of carbarsone on tissues usually due to overdosage, and/or toxicity of carbarsone preparation containing arsanilic acid.

Carbarsone is an effective adjuvant agent in antiamoebic therapy and is a relatively safe form of arsenic, but due regard for proper manufacture and storage safeguards must be maintained.

Carbarsone should not be prescribed in excess of the dosage plan here outlined, namely, 0·25 g. three times daily for 10 days for average size males, and twice daily for females and smaller males. The course should not be repeated in less than 10 days after the last dose.

British anti-lewisite (BAL), 10 per cent in oil, is effective in therapy of these reactions, but must be employed at the earliest sign of toxicity and in full dose plan as recommended by the manufacturers.

Rauwolfia-Haematemesis and Melena

HOLLISTER (*A.M.A. Arch. Int. Med.*, **99**: 219, 1957) from the Medical Service, Veterans Administration Hospital in reporting on four cases of haematemesis and melena which occurred during treatment with alkaloids of *Rauwolfia serpentina* observes:

The lack of antecedent gastrointestinal haemorrhages and the close time relationship of these symptoms to the use of these drugs makes a causal relationship likely. Although reserpine may cause exacerbation of duodenal ulcer, frank ulceration was found by roentgenologic examination in only one of these patients. The hypermotility, hypersecretion, and vascular dilatation of the gastric mucosa produced by these drugs are thought to cause small gastric erosions which may bleed profusely. No evidence was found that these drugs cause a disorder of blood clotting. Gastrointestinal ulceration or haemorrhagic diathesis are contraindications to the use of these preparations unless the clinical indication is sufficiently great and close observation is possible.

Surgical Complications of Collagen Diseases

CARLSON AND HUDSON (*A. M. A. Arch. Surg.*, **74**: 381, 1957, Ref. *Canad. M. A. J.*, **76**: 1085, 1957) write that Duff listed rheumatoid arthritis, rheumatic fever, systemic lupus erythematosus, periarteritis nodosa, dermatomyositis and scleroderma as collagen diseases. Four cases of lupus erythematosus are described in which gastrointestinal bleeding, abdominal pain, mesenteric thrombosis, pancreatitis and rupture of the colon occurred. Two of these had periarteritis nodosa. One of them appeared to have been arrested after a steadily progressive deterioration by splenectomy. Cases of lupus erythematosus with hypersplenism and purpura were also improved by splenectomy. Rheumatic fever cases were not helped by splenectomy, but in rheumatoid arthritis some encouraging results have been obtained. It is suggested that some cases resembling acute appendicitis but with a normal appendix may be cases of periarteritis nodosa or "necrotizing arteritis".

It may be that splenectomy is effective in collagen diseases as a form of shock therapy or perhaps by a hormonal effect. Its use is experimental thus far.

CURRENT TOPIC

THE HOSPITAL OF THE FUTURE*

A. L. BRAVO

Chief, Section of Social and Occupational Health, World Health Organization

It has been said that a hospital should not be built to last for a longer period than 20 years, as by then the building and design will have become obsolete because of the new requirements created by the rapid advance of medical science. This concept has been shown to be especially true in recent years. It has been seen how sulfonamides and antibiotics have overthrown all the former complex ways of treating venereal diseases and the world is now witnessing the passing of the tuberculosis sanatorium era.

As some hospital facilities become outdated, however, new requirements come to the fore and there are ever-increasing needs to be met. Many hospitals throughout the world have been faced during the last few years with the need to install, say, an electronic microscope, and the advance of radiotherapy and radio-active tracers has compelled others to build up entirely new premises so protected as to avoid risks for the personnel.

But it is not only the progress in diagnostic and therapeutic procedures that is causing the hospital to change. Social needs and the more modern social approach to health and disease have also an impact on its evolution. The hospital, as the part of the medical and social organisation of a country responsible for the health care of the population, is called on to adjust its machinery to the new developments in the social field. Today, out-patient departments have become an indispensable part of the general hospital and physical medicine can no longer be ignored. The concept that the general hospital should be devoted to the care of acute diseases only is being revised and many hospital administrators have come to the conclusion that the chronically ill and the aged must also be catered for.

In other words, the hospital's role is now seen as enlarged to take in preventive medicine activities, and this concept has received the endorsement of the Tenth World Health Assembly, in its technical discussions held in May, 1957. Earlier, in 1956, an expert committee brought together by WHO for the purpose of considering the hospital's place in programmes of community health protection adopted the same view.

To foresee what the hospital of the future will be, it is necessary first to analyse the trends in hospital care, the progress in administration and architecture, and the impact of social needs and economic development on the hospital set-up.

The Trend in Hospital Care

The hospital has long ceased to be a charitable institution for the care of the indigent. Gone are the days when the well-to-do private physician was wont to spend part of his time caring for the destitute with no other reward than the practice and experience gained. Nor is nursing any longer the exclusive field of the religious orders. Nowadays, the hospital is a centre of technical knowledge and skills, responsible for the health care of a given population. It has to be equipped to make a diagnosis immediately, prescribe the right treatment, and institute rehabilitation measures, where required, with the least possible delay. Modern practice demands, too, that the patient be kept ambulatory, whenever possible, so as to save costly hospitalisation.

This has been the trend until recently and the hospital has organized its facilities to meet these requirements. A large out-patient department is usually its front line. All the specialities and diagnostic and therapeutic facilities should be readily available in this department, so that as many ambulatory patients as possible may be treated and at the same time receive the benefits of the advances made in medical science. The department has to be equipped, too, for the thorough study of more complex cases that will need to be admitted to the wards for further examination or treatment. In short, a full comprehensive health care programme of the highest possible quality should be the aim of the out-patient department. It should be equipped and staffed to provide specialised health care beyond the capacity of the general practitioner or health centre in the area. In some cases, it may even reach out to the family in the home, through domiciliary health care services.

In its turn, in-patient care of a high scientific standard should also be readily available. Naturally, the extent to which the facilities for the achievement of this goal will be developed will depend on the size of the hospital and of the population to be served. The hospital's treatment should not stop at the acute phase of a disease; medical and social rehabilitation measures should also be instituted as early as possible.

Yet however perfect may be the care of the sick, this is not the full answer to the health care problems of the population. The full paraphernalia of preventive measures coming under public health is the essential complement. And the great majority of hospitals today are tending more and more to integrate preventive work among their activities. Maternity hospitals have realized that certain immunizations can and should be given to the newborn child in the first few days of his life. With the discovery of the miniature x-ray, the possibility of tuberculosis and the lung cancer case-finding among all hospital admissions has become a reality. More and more, too, the opportunities for health education of patients and their families are being recognised and used by hospital nurses and medico-social workers.

But in some places the trend towards integrating preventive medicine in the hospital has gone even further. Probably the children's hospitals have led the way, by realising that the only way to prevent much of infant illness is to keep an eye on the child through well-baby clinics, either attached to or working in close relationship with the hospital. Then, too, hospitals located in or near industrial areas have found that much of their day-to-day work is connected with industrial injuries or

* Based on an address to the 10th International Hospital Congress, Lisbon, 3-7 June 1957.

diseases. In many, therefore, preventive activities have been introduced, in co-operation with the industrial medical services. The hospital facilities, for instance, may be used for the pre-employment and periodic examination of workers and, on the laboratory side, for toxicological investigations. Sometimes, a physical medicine department is also organized, with the aim of preventing invalidism.

Architecture and Administration

Parallel to the growing complexity of medical care, hospital architecture and administration have developed to the point of becoming specialities in their own right.

The hospital architect nowadays has to know not only the skills of his own profession but also the fundamentals of nursing and medical care. The hospital of the future brings to mind a modern mono-block building, ventilated and illuminated according to the various technical needs, and complete with air-conditioning (at least for some services), central supply of oxygen and compressed air, lifts and other easy transportation facilities, and kitchen, laundry and sanitary installations for a few thousand people.

The administration of a hospital of this kind includes the full range of problems involved in the administration of a small community, with those related to the medical services for the sick added. Such matters as budget and running expenses, record-keeping and statistics, supplies of all kinds, personnel management and human relations, and a variety of social problems, are all daily concerns of the hospital administrator. Hence, specialized training for the job is essential; often, today, this training is of graduate standard.

Economic Burden on Society

Obviously this highly specialised and elaborate machinery has become extremely costly and entails the employment of a number of professional people who are entitled to reasonable salaries in accordance with their skills. The unfortunate result of all this expansion is that hospital care has gone beyond the means of the ordinary family. And even social insurance institutions are today finding difficulties in meeting the hospital bill, while many governments are seriously concerned at its inflated total. Those responsible for planning the hospital of the future will have to try to find a reasonable compromise.

The Hospital in the Social Set-up

The place of the hospital in a society has to be focussed from two angles: it should, on the one hand, be an expression of the needs and wishes of the community and, on the other, an instrument to serve the society itself. Accordingly, a hospital should be planned with the active participation of the comunity, bearing in mind the incidence of disease and injuries, the birth and mortality rates, the standard of living, the habits and religious beliefs, and the housing conditions and transport facilities, of the area to be served.

The hospital need not necessarily be a beautiful modern building. A modest but comfortable emergency construction may equally well serve the purpose. But what is important is that the hospital should be adapted to the local conditions and should provide the best of comprehensive health care for the population.

A regional system is most likely to provide this adaptation of hospital facilities to local geography and population distribution. Special skills and equipment may be centralised in a regional hospital, at the disposal of the region as a whole, while a network of smaller intermediate and local hospitals can be responsible for the simpler day-to-day care in their respective districts. In many areas, the local hospital may act as a health centre, so contributing to the desirable integration of preventive and curative medicine.

Needs and Resources at the National Level

The importance of a thorough assessment of needs and resources in the early stages of planning a hospital programme cannot be over-emphasised. It is astonishing how many times it has been found that the number of hospital beds available in a country was unknown or how often large capital investments have been made haphazardly.

The number of hospital beds required varies widely from one country to another, depending largely on the incidence of disease and injury. Other factors to be taken into account include the availability of trained staff and of funds, for it would obviously be unrealistic to launch an ambitious construction programme without these important elements to hand.

Many attempts have been made to establish a bed-population ratio for universal application but the wide variation in needs and resources makes it necessary, in practice, to determine this locally for each particular case.

Whilst many countries are aiming at a ratio of 7 or even 10 beds per thousand of the population, others would be happy if they could achieve the modest goal of one per thousand.

Whatever the case may be, however, a fairly accurate survey of needs and resources is a pre-requisite to the laying of future plans. In general, countries are equipped to carry out this preliminary work for themselves, but in certain cases it may have to be undertaken by foreign experts provided through international co-operation programmes.*

As regards staffing, in the great majority of cases where international help is needed to set going a hospital programme, there is usually a complete lack of train-

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* Hospital surveys have been carried out, under WHO sponsorship, in Ceylon (1951), Egypt (1952) and Turkey (1956). In Japan, a WHO expert has helped to analyse the results of a survey made by the Institute of Hospital Administration, Tokyo (1956). Plans are under way to give help in a survey of the hospitals in Burma. The Saskatchewan (Canada) Hospital Survey and Master Plan (1951) constitutes a typical example of one carried out by national authorities without foreign aid. The ultimate goal of all these surveys has been either to develop a long-term programme of hospital planning and organisation or, as in Japan and Saskatchewan, to reorganise an old hospital pattern.

ed persons on the spot. This is by no means a new situation. Florence Nightingale and other pioneers of hospital care also had to start from scratch.

In the first instance, every effort should be made to gather a nucleus of staff from among national resources and talents. This will serve as the basis for further development later on, when a proper training programme can be launched in conjunction with the construction programme. And international help is usually available to fill the initial gap and help in the training programme.

By and large, buildings and equipment represent the main problem for most countries. The initial capital outlay for building a hospital is great and local governments often are faced with the alternative of giving the people a hospital for the sick or housing for the healthy. Building materials and manpower may also be scarce, thus further limiting the country's building capacity, And again, hospital equipment is costly and in many cases may have to be imported at the expense of a substantial proportion of the available foreign currency. In such circumstances, it is hardly surprising that the priority given to hospital construction may be very low.

One national resource that should not be underestimated does, however, exist, namely, the power of the people themselves to contribute. Where a local community feels that a hospital is one of its basic needs, its individual members are generally prepared to raise the necessary funds, however poor they may be, provided a well-thought-out technical plan is put before them. The obvious disadvantage to this direct participation is that the community wants to have a voice in such matters as choice of site, kind of services to be provided, and so on, without taking the broad view of the hospital's place within the scheme as a whole. It is in such circumstances that international assistance can be of great help, by offering the independent technical advice of an outside expert, who is not involved in local interests and policies.

Coming to planning itself, this is a stage the importance of which cannot be overemphasized. The problems of the choice of site and the size of building, the number of beds and the specialities to be provided, are only the fundamentals and the very beginning of the planning process. Yet the decisions on these points will govern the scope of future activities and a mistake in the early stages may well distort the whole pattern for the future.

What already exists in the way of hospitals obviously has to be taken into account. Where the shortage of beds is great, the problem will have to be tackled on an emergency basis and hospital accommodation built up as fast and as cheaply as possible. In special cases, transportable hospital units may have to be used, even though this cannot be regarded as an adequate permanent solution.

To ensure objective appraisal of overall needs, a national planning commission may be found of great help. This body should be a technical advisory one, composed of physicians, architects, engineers, nurses and administrators. Much of its work will necessarily be based on the findings of the pre-planning hospital survey, if indeed the organization of this is not its first task.

NOTES AND NEWS

International Conference on the Influence of Living and Working Conditions on Health

The International Conference on the Influence of Living and Working Conditions on Health was held on 27th—29th September in Cannes, France, under the presidency of Professor Parisot, Honorary Dean of the Medical Faculty of Nancy, France, and former president of the World Health Organisation, and Professor Josue de Castro, Head of the Institute of Nutrition of the University of Brazil and former president of the Food and Agricultural Organisation.

250 persons from 31 countries of all continents took part in the meeting. Among those present were numerous official representatives, 52 university professors and heads of institutes and a large number of eminent medical and scientific personalities. All the medical disciplines were represented.

The following are the conference conclusions.

First Theme : Influence of Nutrition on the Development of Disease.

I. Malnutrition is the world's commonest disease. It appears in three main forms :

(1) Under-nutrition and deficiency diseases.

(2) Overfeeding, obesity and its consequences.

(3) Various dietary imbalances.

II. Deficiency diseases as described in the textbooks are fairly rare nowadays, but it is recognised that most cases of malnutrition have a complex aetiology. The general problem of malnutrition deserves further study.

III. Many instances of malnutrition are derived not solely from a lack of foodstuffs, but also from harmful dietary habits, from faulty preparation of food and from digestive disorders such as dyspepsia, gastro-enteritis, dysentery, etc.

IV. Malnutrition, in addition to being a serious problem in its own right, can also provoke or aggravate other diseases.

V. The Conference, on considering the present situation in the world, recognises the need for a universal effort to promote social and economic development of the various populations, in order that all may obtain adequate foodstuffs for a balanced diet.

VI. The Conference further recognises the importance of educational and medical factors in ensuring the best utilisation of available food supplies.

Second Theme : The Effects of Work on Physical and Mental Health.

The Conference is of the opinion that the progress which has resulted from industrial development has been accompanied by the appearance and aggravation of many occupational diseases.

I. It is recognised that many of the well-known measures against industrial diseases and accidents give almost certain results when they are applied.

II. Legislature exists in respect of these preventive measures. Further measures need to be taken and it is essential to ensure that they are really applied in practice—for recommended precautions are often ignored.

III. Further research is needed into those problems which are new or incompletely solved. Nervous fatigue brought about by excessive speeds of work seems particularly worthy of further study. Public authorities should make available to competent research workers the means for further work in this field.

IV. As in other spheres, scientific exchanges between workers in different countries should be facilitated and extended.

Third Theme: Effects of Ionising Radiation on Human Life.

The various speakers emphasised the dangers resulting from the mutagenic and carcinogenic effects of radiation. Two speakers from Japan gave detailed reports on this late haematological effect and the carcinogenic effects which are being observed amongst the populations of Hiroshima and Nagasaki who survived the atomic bombs.

In recent years the total exposure of the world's population to ionising radiation has increased rapidly from various sources—medical, industrial, experimental (atomic explosions). In the present state of knowledge, in view of the grave long-term effects, all exposures of individuals or populations to ionising radiation should be minimised.

This second International Conference gives its support to those experts in the U.S.A., Western Germany, the U.S.S.R., Great Britain and other countries who have made known to the people, parliaments and governments of the whole world the grave danger which faces them and also calls for the ending of the testing and production of nuclear and thermonuclear weapons.

In the name of the Conference it was further proposed to call an international conference to discuss what measures should be adopted to ensure that atomic energy should be used solely for the benefit of humanity.

International Diabetes Federation

The third Congress of the International Diabetes Federation will take place in Dusseldorf from July 21 to 25, 1958. Besides the scientific programme, social-medical subjects will be discussed, too, by the diabetic organisations affiliated to the International Diabetes Federation.

The Congress is held by the German Diabetes Committee in collaboration with the German Diabetes Association. The languages used at the Congress are German, English and French.

The German Diabetes Committee was founded in Dusseldorf in April 1956. Dr. P. Schwenger, Dusseldorf, Humboldtstr. 57 is the President of the Association.

International Congress on Diseases of the Chest

The Fifth International Congress on Diseases of the Chest, sponsored by the American College of Chest Physicians, will be held in Tokyo, Japan, September 7-11, 1958. The Congress will be presented under the patronage of the Government of Japan and the Japan Science Council. The Congress has been endorsed by the Japan Medical Association.

Scientific papers, panel discussions, fireside conference and motion pictures will be presented on the following subjects:

Radiation Hazards, Coronary Disease, Occupational Diseases of the Chest, Benign and Malignant Chest Tumours, Tuberculosis, Cardiopulmonary Function Studies, Asthma and Emphysema, Cardiovascular Surgery, Effect of Jet Air Travel in Chest Disease, Bronchoesophagology, Tropical Diseases of the Chest, Aetiology of Lung Cancer, Pediatric Cardiology, Metabolic Disorders, Miscellaneous Topics on Chest Diseases.

Eminent scientists from countries throughout the world will participate in the discussions, which will be simultaneously interpreted into the three official languages for the Congress, i.e., Japanese, French and English. There will also be scientific and commercial exhibits and visits to various medical institutions and hospitals in Japan. The registration fee for each physician attending the Congress is $25·00 (U.S. currency) and $10·00 for each family member accompanying the physician. For additional information, please write: Dr. Jo Ono, Secretary General, Fifth International Congress on Diseases of the Chest, School of Medicine, Keio University, 35, Shinanomachi, Shinjuku, Tokyo, Japan.

The World Medical Association

The 12th General Assembly of the W.M.A. will be held in Copenhagen, Denmark, August 15—20, 1958. Member associations are urged to submit the names and addresses of their delegations to the Secretariat not later than February 24, 1958.

Information relative to the 12th General Assembly can be obtained by writing to the Secretary General, The World Medical Association, 10 Columbus Circle, New York 19, New York.

Doctors Allege Atrocities in Cuba

At its 11th General Assembly, the Secretary General of the World Medical Association was directed to endeavour to arrange for an officially recognized committee to visit Cuba with full authority to conduct an on-the-spot investigation of the allegations received by it that the doctors of Cuba are being persecuted and murdered while carrying out their humanitarian service to the sick and wounded.

The membership of the proposed committee would be officials of the World Medical Association, namely: Louis H. Bauer, E. S. Hamilton, Austin Smith, and an attorney-at-law not yet selected. President Batista of Cuba has been requested that the committee be authorised to investigate "alleged persecutions of the medical profession attending the sick and wounded and guarantee the rights of Cubans to testify before the committee without fear of reprisal." The committee "would not be concerned in any way with the political aspects of the situation in Cuba".

Incidence of Tuberculosis in U.S.A.

The annual report of the National Tuberculosis Association of the United States shows that some 55 million

people are infected with the tubercle bacillus, according to the estimates based on skin sensitivity tests and that the statistical odds are that approximately 5 per cent of these, or 2·75 million people, will break down with active tuberculosis during their lifetime if the development of active disease among the infected continues at the present rate.

The report which has just been released brings out that BCG, the most widely accepted vaccine against tuberculosis, cannot be employed to prevent these cases of tuberculosis because BCG is not given to people already infected with bacillus tuberculosis. The report reiterates the recommendations of the NTA's medical section, the American Trudeau Society, that BCG be given to people not yet infected but who are exposed to tuberculosis to an extraordinary degree, and emphasises the importance of further research in the field of immunity to tuberculosis.

International Cancer Congress

The Seventh International Cancer Congress will be held in London, England, 6—12 July 1958, under the sponsorship of the International Union against Cancer. Scientists and physicians are invited to submit papers on experimental or clinical aspects of cancer or on cancer control. These papers should represent new contributions to knowledge and must not have been published or reported previously. Further particulars may be had from the Secretary General, 7th International Cancer Congress, 48 Lincoln's Inn Fields, London, W.C. 2.

The Indian Science Congress

The 45th session of the Indian Science Congress was held on January 6, 1958 at the University Campus, Madras. Pundit Nehru inaugurated the Congress and declared open the Science Exhibition. Foreign delegates from U.S., U.K., U.S.S.R. and other European countries as also Japan and Australia attended the Congress.

The following were the presidents of the different sections of the Congress this year: Dr. A. K. Bose, Medical and Veterinary Sciences; Dr. K. Keshen, Statistics; Dr. P. N. Bhaduri, Agricultural Sciences; Dr. P. Bhattacharja, Zoology and Entomology; Dr. G. M. Murulkar, Anthropology and Archaeology; Dr. A. G. Jhingram, Geology and Geography; Prof. S. Ghosh, Chemistry; Dr. S. N. Ray, Physiology; Dr. A. K. P. Sinha, Psychology and Educational Sciences; Prof. T. S. Sadasivan, Botany; Sri S. L. Mulurkar, Physics; Prof. B. S. Madhava Rao, Mathematics; Prof. Chandrasekhar Ghosh, Engineering and Metallurgy.

All-India Conference of Industrial Medicine

Under the auspices of the Society for the Study of Industrial Medicine, India, the Ninth All-India Conference of Industrial Medicine will be held on 14—17 February, 1958 at the Madras Medical College, Madras. Sri S. Ananthearamkrishan is the Chairman of the Reception Committee. Dr. U. Krishna Rau, Speaker, Madras Legislative Assembly will inaugurate the conference and Dr. C. K. Ramachander will preside over it. Dr. V. R. Thayumanaswami, Director of Medical Services, Madras State, will inaugurate the Scientific Session.

Sir Kedarnath Das Memorial Fund

To perpetuate the memory of the late Sir Kedarnath Das, the Bengal Obstetric and Gynaecological Society, 91/B Chittaranjan Avenue, Calcutta, has arranged for an Annual Oration named 'Sir Kedarnath Das Memorial Lecture', by a suitable person of repute, as selected by the Society or its Executive Committee. The annual value of this Oration has been fixed at present at Rs. 250. The Society also has appealed to the members of the medical profession to contribute to the Fund generously to make a permanent fund, from the interest of which the Oration expenses can be met every year.

Radio Isotopes Unit at Bombay

At the Seth G. S. Medical College and the King Edward Memorial Hospital, Bombay, a radio isotopes Unit for medical purposes is in the course of construction, the first of its kind to be set up in India.

Dr. R. S. Satoskar, a graduate of the Seth G. S. Medical College, Bombay, who had been studying Pharmacology at Sheffield University, England, on a Glaxo Laboratories scholarship, and has now returned to India, will be resuming an appointment here. He had worked with radio isotopes whilst at Sheffield University and the Atomic Energy Research Establishment at Harwell, England.

Health Schemes for Delhi

The construction of a 250-bed ward for the isolation of advanced T.B. patients has been proposed by the Delhi Administration as one of the seven schemes to be included in the Second Five-Year Plan for improving health.

An estimated 20,000 persons suffer from the disease. Facilities for dealing with the problem are few, there being only two T.B. hospitals in Delhi with 800 beds.

The other projects will be the establishment of six more family planning centres, training of dais, the establishment of two venereal disease clinics, the addition of a dental clinic to the Bara Hindu Rao Hospital and the training of laboratory assistants and the training of sanitary inspectors. There are at present 28 family planning clinics in Delhi.

Meanwhile, it is reported that several of the schemes launched in 1957 for improving public health have been completed. The Irwin Hospital has been enlarged with the addition of 120 beds. A large area measuring 50 acres has been acquired from the Delhi Improvement Trust near Shahdara for starting a leper colony which will, to begin with, accommodate 250 lepers. The health centre at Palam has been completed while a second centre is being established in Narela. The staff quarters for a mental hospital have been completed. Work will start on the main hospital building as soon as administrative sanction is received.

I.M.A. Office-bearers for the Year 1958

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2. M/s. G. Basu & Co., Chartered Accountants (Calcutta).

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

An Insult to the Medical Profession

SIR,—I have read the letter of the Hony. Secretary, I.M.A. Tittagarh Branch (*J. Indian M. A.*, **29**: 489, 1957) especially the line—"It is the strongest insult which can be ever conceived to the medical professions". Let me remind him of a recent happening. The I.M.A. has agreed to help implementing the E.S.I. Scheme on condition that whether a doctor is a licentiate or graduate, whether he is practising for three or thirty years if he be a Panel Doctor he will be deemed unfit to prescribe Milk of Magnesia or Aludrox or Elixir Vit. E Complex for which a specialist's opinion will be necessary. I am etc.

NIRMAL KUMAR MUKHERJEE,
Calcutta. Member, Kankurgachi Branch, I.M.A.

Licentiates in Behar

SIR,—I want to draw the attention of all members of the Association in general and Government of Behar in particular, regarding the fate of Licentiates working under Government of Bihar and various District Boards.

The D. B. dispensaries in Bihar are being provincialised and during the Second Five Year Plan a total of 250 dispensaries will be taken under Government control. The policy of Government of Bihar is to absorb those medical graduates of the District Boards who will be selected by Bihar Public Service Commission. But what will be the fate of Licentiates and the remaining medical graduates? They have been working quite long and serving the people of rural areas.

To the best of my knowledge it was passed in the Gaya Session of Bihar State Branch of the Indian Medical Association that all Licentiates of ten years' experience should be treated as Civil Assistant Surgeons and also it was resolved at the 17th Bihar State Medical Conference that all medical officers of the District Boards should be absorbed in Government service in Bihar. But the Government of Bihar is not paying any attention towards the Licentiates of this State.

I appeal to the Indian Medical Association to take up the cause of the Licentiates in Bihar so that they may be promoted to C.A.S., as has been done in other provinces in India. I am etc.

Colgong, BIJOY CHANDRA SINHA,
Bhagalpur. Member, Indian Medical Association.

XVII BENGAL PROVINCIAL MEDICAL CONFERENCE, 1958, BISHNUPUR.

The 17th Bengal Provincial Medical Conference will be held at Bishnupur (Dist. Bankura) on the 15th and 16th March, 1958.

Dr. B. P. Tribedi, President, Indian Medical Association, Bengal Provincial Branch, will preside.

For further details, the Hony. Secretary, Bengal Provincial Branch, 67 Dharamtala Street, Calcutta-13, may be contacted.

REVIEWS

Nomina anatomica—Von Prof. Dr. Fr. Kopsch. 5. Auflage. Eine vergleichende Übersicht der Basler, Jenaer und Pariser Nomenklatur. Bearbeitet von Prof. Dr. Dr. K. H. Knese, Kiel. 1957. XX, 147 Seiten, Gr.-8°, kartoniert DM 6.40.

Anatomical Terms (in German)—By the late Prof. Dr. Fr. Kopsch. 5th edition. Comparative survey of the nomenclatures of Basle, Jena and Paris. Revised by Prof. Dr. Dr. K.-H. Knese, Kiel., 147 pp. George Thieme, Stuttgart, 1957, DM. 6.40.

The 6th International Anatomical Congress, held in 1955 in Paris, accepted some new anatomical terms (P.N.A. 1955) which made necessary this addition to Prof. Kopsch's previous alphabetical comparative dictionary of the nomenclatures of Basle, 1895 and Jena, 1935.

Of the 5,640 anatomical names included in the P.N.A. 4,286 have been taken over from the Basle terminology, while 1,354 have been altered; about 200 terms are new. The alphabetical list is being preceded by the "nomina anatomica emendata" (amended anatomical names) and followed by a list of 114 explanatory remarks. This booklet is a must for every anatomist, irrespective of his mother tongue, all the terms being in Latin and internationally used.

Schizophrenie—Somatische Gesichtspunkte.—Herausgegeben von Dr. D. Richter, Cardiff. Deutsche Übersetzung herausgegeben von Doz. Dr. Dr. V. Klingmüller, Hamburg, 1957. XII, 167 Seiten, 24 Abbildungen, Gr.18°, kartoniert DM 21.

Schizophrenia—Somatic Aspects—Edited by Dr. D. Richter, Neuropsychiatric Research Centre, Whitchurch Hospital, Cardiff. Pergamon Press, London. German translation edited by Doz. Dr. Dr. V. Klingmüller, Hamburg. XII, 167 pp., 24 illustr. George Thieme, Stuttgart, 1957. DM 21.

This monograph arose from a symposium held at the Ciba Foundation, London, supported by the Mental Health Research Fund. Apart from the nine experts whose contributions are being presented in this volume, ten others took part in the discussions, so that a well rounded and up-to-date picture has been produced of this intriguing subject which is as interesting as it is controversial. The headlines of the chapters give an idea of the fascinating problems covered by scientists and clinicians, leading in their subjects and actively engaged in unravelling the mystery in which is veiled the fundamental interrelationship of body and mind. L. Rees describes somatics peculiarities of schizophrenic patients. M. Roth, Newcastle, the mutual effects of hereditary and environmental factors on the development of schizophrenia (s.); D. Hill, London, gives a valuable survey of electroencephalographic findings; D. Richter, Cardiff, the editor, discusses biochemical points of view ; endocrinological influences and changes have been presented by the late D. R. Sands, Epsom; pathological anatomy and histology by G.B. David. Cardiff; consciousness, adaptive behaviour and s. form the subject of a chapter by S.L. Sherowood, Mill Hill, London, and Colchester ; the metabolism of periodic or recurrent s. has been surveyed by J.H. Rey, Maudsley Hospital; drug effects and s. by D. Stafford-Clark, Guy's Hospital, London. At the end of every chapter a representative cross-section of literature is to be found; the pathologist sets a record with 273 references. The significance which this publication has in the opinion of continental scientists can be estimated from the fact that seven psychiatrists, several of them university professors and outstanding experts in their own right, joined hands to translate this work, which is indispensable for everybody interested in the complex problem of schizophrenia which every day gains in importance, appearing at the age of highest hopes and in most countries filling one-fifth of all the hospital beds.

OBITUARY

Dr. Menhanlal Atal

Dr. Menhanlal Atal, died in Peking on December 1, 1957.

A noted Indian surgeon and poet, he was a staunch member of his country's national movement and a distinguished fighter for peace. Born in 1886 in Uttar Pradesh, he studied medicine and surgery in the University of Edinburgh and became a Fellow of the Royal College of Surgeons.

DR. M. ATAL.

In 1938, after having given his services to the Spanish people in their fight for independence and democracy, he came to China as the leader of a 5-member medical aid team sent by the Indian National Congress.

Dr. Atal's ashes, by his own last wish, were divided into two parts : one to go to India and one to remain in China forever.

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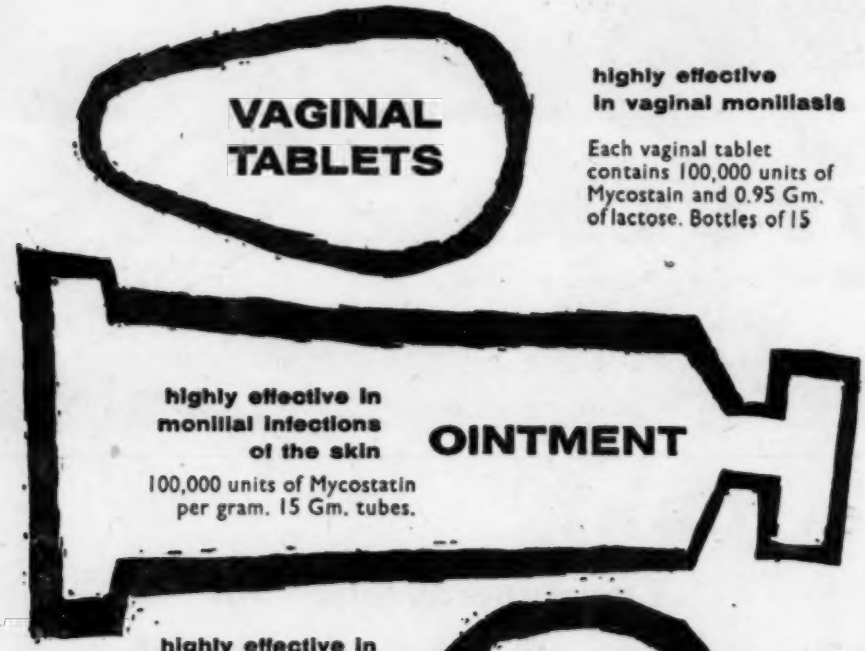
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SUPPLEMENT
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XII MADRAS STATE MEDICAL CONFERENCE, 1957 COIMBATORE

The 12th Madras State Medical Conference, 1957, was held at "Gopal Bagh", Avanashi Road, Coimbatore, on 23rd and 24th of November 1957. More than five hundred delegates and visitors from all over the State and neighbouring Kerala State participated in the deliberations.

Sri A. Ramalingam Chethiar, Chairman of the Coimbatore Municipality hoisted the National Flag and Dr. Y. P. Vasudevan, out-going President, hoisted the flag of the Indian Medical Association.

Dr. T. V. Sivanandam, member of the Madras Legislative Council, who was the Chairman of the Reception Committee, read out the welcome address which, appropriately introduced the Association and the City of Coimbatore and its association with medical conferences in the past. He recalled that the second State Medical Conference was held in Coimbatore in the year 1947, which was a memorable year in the history of the medical association. In the course of his address, he also referred to the introduction of male nurses and said that it had not only brought down the efficiency of general nursing but also impaired the quality of nursing by female nurses. He said that male nurses with adequate practical training in medicine and surgery might be taken as Health Assistants to run rural dispensaries. He further said that Coimbatore City was providing to the students all curricula of studies except that of medicine, veterinary science and law, and that it was his desire and also of his colleagues at the Conference that their popular Government should come forward to create a suitable climate with mutual understanding and goodwill of the philanthropic citizens of this great city for opening a Medical College and a Veterinary College which would fulfil the requirements for establishing an University at Coimbatore.

In the absence, due to indisposition, of The Hon'ble Sri M. A. Manickavelu, Minister of Public Health, Government of Madras, Sri T. M. Narayanaswami Pillai, Vice-Chancellor of Annamalai University, inaugurated the Conference. Calling on doctors to develop what might be called "sixth sense" Sri Pillai said that if a doctor realised that the cure for a disease was not entirely his own handiwork but was the result of certain external factors also, then his practice should be a success. Opposing the idea of an integrated medical system, Sri Pillai requested men with a high standard in the profession and endowed with great knowledge to try to help the indigenous by seeing whether there was anything scientific in that system which could be adopted and if so it should be imported into their system. Sri Pillai thought, too much of specialisation had led to the disappearance of the institution of family doctors. He viewed that a majority of general practitioners should become family doctors and those with high talents could turn to specialisation after a period of service sufficient to give him that basic knowledge, and that generally patients would be anxious to stick on to one doctor and would not like to run after many men of the profession.

The Scientific Session of the Conference began on the 23rd of November and resumed again on 24th November 1957 lasting the whole day. The Scientific Session was inaugurated by Dr. Lt. Col. V. R. Thayumanaswami, the Director of Medical Services, Madras. There was a session of Long Papers on Medicine, Surgery and Midwifery in which eminent medical men took part. There was a Symposium on "Cirrhosis of Liver" at which the leading physicians and surgeons addressed the gathering on the Medical Aspect, Surgical Aspect, Pathological Aspect, Pathology of Infantile Cirrhosis, Paediatric Aspect and Bio-chemical Aspect. Dr. P. Arunachalam, retired Director of Medical Services, Madras, was the Moderator at the Symposium. There was an interesting Quiz programme, after which short papers were read on Sub-Arachnoid Haemorrhage, Recent Advances in Surgery, Gitalin a Cardiac glycoside with wide Therapeutic range, Coccidomycosis of Bone, Management of Diabetic acidosis in children, Problems of Keratomalacia, etc. A committee of judges adjudged the best short paper read, and a Gold Medal to Dr. K. P. Ganesan, Reader in Medicine, Kasturba Medical College, Mangalore, who read the paper on Gitalin, a Cardiac glycoside

DR. M. SANTHOSHAM, THE PRESIDENT OF THE CONFERENCE.

with wide Therapeutic range, and a Silver Medal to Dr. D. Sundareswaran, Hony. Ophthalmic Surgeon, Coimbatore, who read the paper on Problems on Keratomalacia, were awarded on behalf of the Conference.

The Annual meeting of the State Council of the Madras State Branch of the Indian Medical Association was held on 23rd November 1957 at which the Annual Report of the Madras State Branch of I.M.A. was presented. Dr. C. Arumugam, Dr. V. Vijayaraghavan, and Dr. C. N. Santhanam, were unanimously re-elected as the Hony. Secretary, Joint Secretary and Treasurer, respectively, of the Madras State Branch of I.M.A. for the year 1957-58.

Dr. M. Santhosham who presided over the conference in his presidential address, said,

"Our unity in the Association which is a co-operative effort towards the bettering of man's lot is mistaken for trade unionism in certain circles and our joint effort to improve medical service to mankind has failed to gain the well deserved recognition from important quarters. I take this opportunity to call the attention of the Government in the State and at the Centre, whose responsibility it is to provide medical aid for the people whom they rule, to the fact that a disorganised medical profession can only function as scattered mercenary soldiers. The duties of the Government and the Medical Association in this regard are allied but certainly different. The duty of the government is to provide medical aid for the sickly population, whereas it is our aim to see that the best medical aid is given to every sick man.

The manner in which the Employees State Insurance Scheme was implemented in this State by enacting and enforcing the Employees State Insurance Act and by denying the panel system that was suggested by the I.M.A., the Government have plundered away from the labourer his fundamental right to choose his doctor and that too when he is physically ill. There is such a thing as 'doctor-patient-relationship' which the politician cannot understand unless and until he becomes a patient. The implementation of the Employees State Insurance Scheme is but one instance where the advice of the Indian Medical Association had been flouted by the government. There are many other matters in which our advice has been set aside and in many other matters our voice has not been heard or heeded. It will be in the interest of the government and the people whom they serve if the organisation of medical men, namely the Indian Medical Association, is strengthened through their efforts and this can only be done by officially recognising the I.M.A. as an advisory body in the matter of medical and public health legislation. I may here point out that a very major medical reform such as the National Health Services Act in Great Britain would not have been possible but for the advice of the Medical Association of that country. I can assure the government that by officially recognising us as a consultative body they will truly stand to gain because we are not a selfish group and our concern is not ourselves, but the man in pain; our task is not to safeguard our own interest but to wage war against premature death and our motto is service and not security.

CHANGED TIMES :

Vowed to serve all mankind let us pause awhile to survey the context in which our service is to be. After many centuries we, in our country, are determinedly striving hard to build a strong and happy nation. This is to be no easy task. The bulk of the nation is utterly poor having a family income of Rs. 13/- per month, the country is illiterate, and blind beliefs and superstitions have raped the country through the ages. The poorer the material to build with, the greater should be the skill of the builder and the greater should be the determination of the workmen. We, as a body, should give thought, time, energy and determination to build a happy India.

INDIGENOUS MEDICINE :

Since there exists in this land a variety of indigenous systems of medicine and a host of other secret so-called traditional magic remedies of the mountains handed down from generation to generation, the science that we practice, though proved as precise, has come to be looked upon with prejudice in certain circles as a foreign art. Medical practice may have some art about it but Medicine is a science and science is universal. Newton's law of gravity is not a British law and the principle of Archimedes is not a Greek principle. There can be only one medical science for the whole world even as there can be only one physics or one chemistry for the whole world. The work of the individual medical man and the organised medical profession and, above all, the Government's public health and medical service measures stand hampered a great deal, because of the enthusiasm of the politicians to build exclusive hospitals for different systems of medicine and budget separately for the promotion of these different systems. For a state to recognise and subsidise the ancient thoughts and practices which do not stand the test of modern experimental science is to be certainly considered a retrograde step.

The government, in their information booklets and in their various statements of policy, say that they recognise only modern medicine but do encourage to some extent indigenous systems of medicine as well. My grievance is that encouragement is not given in the proper direction and it is not within the desirable limit. I am sure, that most of us will agree, that there can be very effective therapeutic agents available in the pharmacopias of the other systems of medicine. The repeated suggestion of the Indian Medical Association has been that these effective remedies should be chemically standardised, their values properly assessed, their potency biologically assayed and their therapeutic and toxic doses correctly determined in the light of modern medicine so that through the ancient treasures of our motherland's learning we can enrich modern medicine.

PACE OF THE PROGRESS OF MEDICINE VIS-A-VIS MEDICAL SERVICE TO THE COMMON MAN :

The last decade and a half has seen momentous changes in therapeutics. The speed of discoveries is gaining momentum year after year and in the last half of this period, the doctor's bag has gained many new drugs—antihistaminics, antibiotics, antispasmodics, tranquilliscents and so on. Death rate due to diseases like pneumonia, typhoid and tuberculosis has shown a substantial fall in other countries. With the birth of Penicillin and the broad spectrum antibiotics, morbidity and mortality through infective diseases in other countries have shown a sudden drop in the graph. In our country, although the discovery and marketing of these drugs have reduced morbidity in certain classes of the people, the larger section of the population who are underprivileged are unable to derive the same benefit. Undoubtedly, it is the responsibility of the state to provide the life-saving costlier remedies for the common man. It is as much their responsibility to provide them the drugs as it is to provide them the food. If death through lack of food is considered a blot to efficient government, certainly, death through lack of drugs also is equally a slur on the government. The recent import restrictions which affect very essential drugs are likely to produce alarming results. Articles of diet and life saving drugs of very essential nature which cannot be replaced by any other substitutes will not be available any more for our patients. And to disarm us altogether when we are engaged in a battle against a quick killing disease is a very antination act. Lives cannot be sacrificed to save dollars and sterlings. We call upon the Government immediately to repeal the restrictions placed on life saving remedies and diet articles.

N. G. O. AND REIMBURSEMENT OF MEDICAL EXPENSES :

The government's decision to reimburse medical expenses incurred by non-gazetted government servants deserves to be applauded but the rules governing the sanction of such reimbursement is so complex and complicated that few derive any benefit through it. The N. G. O. cannot comfortably fit into the queue in a Government hospital; neither can he tolerate the haste in a state medical institution. He prefers to be heard patiently to his satisfaction and not only to the extent of necessity. He prefers to be visited by his doctor than visit him. The requirements of treatment under authorised medical attendants and in state hospitals which alone could qualify him to benefit through the reimbursement scheme, deprive him of the freedom to choose his treatment and the benefits contemplated. I think this scheme functions more as a promise than as a provision, and I am sure the N. G. O.'s Association will agree with me.

RURAL MEDICAL RELIEF :

In the matter of providing medical service to the inhabitants of remote villages our government has done only a little. The Block Development scheme may improve to some extent the present woeful state. To think of providing the entire rural population with the services of fully qualified doctors is a vain dream. Even after three more five-years plan, could we raise the number of qualified doctors to the required extent? The answer to the rural medical problem is the proposed 'Health Assistant'! To every qualified rural doctor stationed in a taluk headquarters or a medium sized town, six to twelve health assistants stationed in villages may be attached and the doctor can visit the station of every health assistant every sixth day in government owned jeeps. I make a strong plea that the scheme of health assistants should be gone through during this five-year plan period.

THE INDEPENDENT MEDICAL PROFESSION :

The government in their anxiety to please the electorate with spectacular enactments have robbed the clientele of the independent medical profession. The N. G. O. has been directed to the authorised medical attendant, a government employee, the labourer has been diverted to the E. S. I. doctor, a government employee; the families of the labourer would soon be compelled to go to the government doctor; so also all central government servants including the gazetted officials. If the government were to expand their policy of medical service in what may be termed partial nationalisation of medical services, they should give the option to the doctors practising in these areas to come into such partial nationalisation scheme. I state this so that the government may note that the independent medical profession has been hard hit of late.

KNOWLEDGE ABREAST OF TIMES :

Independent medical profession or members of government medical service, we are all soldiers in the same army fighting the noble and humanitarian battle of ending bodily infirmities. In this great battle our weapon is our science. We have to keep our swords sharp and our powder dry. We have also to keep our knowledge of the science abreast of the times and, to this end, the Indian Medical Association has served well its members and the public through their annual conferences in the centre and the branches, through their journals of the parent body and the constituents.

In modern times it is not enough to keep the old weapons in firing order. Newer and better weapons have got to be discovered. The Medical Association, through the labours of its members and through the subsidy of the government, should engage in research and contribute to the growth of medical science so that medical men of our land may have an equal place of honour with the medical workers of other progressive countries. The medical men in government services, particularly in larger hospitals, are the best suited for this purpose.

STATE HOSPITALS :

We are all pleased to note that our state hospitals are becoming larger but at the same time it is neces-

DR. T. V. SIVANANDAM, THE CHAIRMAN OF THE RECEPTION COMMITTEE WITH THE ORGANISING SECRETARY, DR. S. G. RAJARATNAM AND OTHER MEMBERS OF THE WORKING COMMITTEE OF THE CONFERENCE.

sary to point out that they are not growing equally well in popularity. Concerning the care bestowed upon the common man in our state hospitals there is a good deal of criticism. Much of this criticism is not unfounded. Perhaps the people are too ready to put the blame on the doctors. The real cause lies in the fact that our hospitals are all staffed entirely by part-time doctors, some unpaid and some half-paid. I am told that the basic pay of the District Medical Officer is only half that of the District Judge. The Government justify this anomaly by saying that whereas the Judicial Officer is prohibited from other income, the Government Medical Officer is permitted to do private practice. This means that the government wilfully engage medical officers for only part-time work and pay them only for the part-time work. When the entire medical staff are part-time workers, naturally, the hospitals are so understaffed that they can carry out only medical routine. There has to be such hurry about things that the hospitals work more like industrial plants. The doctors do not have time to enquire of the patient anything other than matters concerning his disease. The patient is a human being; he has great many personal problems to share with his doctor according to which the nature of his treatment may have to be modified. If the doctor should treat the patient in the hospital with his head, his hands, and his heart, he should have more time. The present bustle in the hospitals gives time for the doctor only to use the head and hands and never to use his heart.

It is also to be noted that since the governments expect their servants in medical services to earn the bulk of their living-wages outside the hospitals, research suffers a good deal. The intellects at the head of various units in the state hospitals could easily be responsible for every useful original contributions if only they are remunerated sufficiently and employed full time. The Government advance the argument that the state coffers are lean and do not permit them to employ the doctors full time. May I ask the government that if their treasury, becomes leaner, would they have part time officers as district collectors and allow them to serve elsewhere for the other part of the time, or will they agree to employ part time judges and allow them to practice as advocates in other courts? I take this opportunity to request the Government to examine my suggestions in earnest and if they do, I am sure, many advantages can be gained, namely (1) more time will be available for developing doctor-patient relationship, (2) more research will be forthcoming and (3) the difficulty in finding personnel for non-clinical teaching jobs can be overcome. The other objection to this proposal of employing all government doctors exclusively for service inside the hospital is that the best qualified and most experienced heads of the profession will not be available for the richer sections of society who could afford and would like to buy the best medical opinion. I am sure that this difficulty can be overcome by providing well-set-up consulting rooms for surgeons, physicians and specialists inside the premises of the hospitals and by collecting fees for such consultations. I am sure that the very great demand for the government doctor's opinion from the well-to-do public will fetch a revenue sufficient to give effect to the scheme of full-paid doctors for full-time service. I wonder how a partly paid part-time doctor can be more serviceable than an unpaid part-time doctor.

DISCRIMINATION AMONGST DOCTORS :

This leads me on to the discriminatory treatment that our honoraries and independent practitioners suffer at the hands of the government in the matter of medical certification. We know that certain certificates are exclusively the privilege of the paid government doctor. This policy of the government degrades the dignity of the entire medical profession because, to think that the verdict of the government paid medical man is more dependable than that of an unpaid man is to believe that the conscience of the doctor is a commodity available for a price.

The strength of the doctors engaged in active clinical work can be increased. The policy of fixing the retiring age of Government medical officers at sixty has been announced but has not taken effect. This may be done at once to the great advantage of the people. Also those doctors who are employed by local boards and municipalities should be taken into provincial service so that they may have opportunities of getting trained in teaching hospitals. Their remuneration should automatically be equalised to the level of the provincial medical officers.

It will not be out of place to mention here a few words about a section of our professional brethren in the Armed Forces who underwent the same graduate course in the Medical Colleges and were awarded D.M. & S. diplomas. After 20 years of service in the army and attaining the rank of Majors and drawing over Rs. 1,000/- they were forced to retire on a paltry pension of about Rs. 180/- or revert to the non-commissioned status. Naturally these officers preferred to retire than be subjected to the indignity of reversion. I strongly urge the Government to absorb these officers with such vast experience both professional and administrative at least as Assistant Surgeon grade I fixing their minimum pay in accordance with the services rendered by them in the army in the usual scales.

The following resolutions were passed at the Conference :

1. "Resolved to request the Government to enforce strictly by a restriction order the sale of antibiotics by chemists or other license holders except on a prescription by a registered medical practitioner."

2. "It is resolved to request the Government of India and the State Government to retain English as medium of instruction in High Schools and Colleges in the interests of progress in the field of national and international science and literature."

3. "It is resolved to request the Government to sanction the same scale of pay to the local board servants as for provincial medical personnel and further resolves to request the Government to hasten the process of provincialisation of local board medical officers."

4. "This Conference is of the view that the proposed amendment to rule No. 25 of Drugs Rules published in the gazette notification of September 1957 is unnecessary as it will throw needless additional work on the already overworked medical practitioners and will further involve needless inspections by Government Officers and if any such safeguard is required under the Drugs Rules the Indian Medical Association and the Madras Medical Council may be asked to suggest suitable measures."

5. "Resolved to request the Government to classify all medical practitioners of modern scientific medicine of 5 years standing and more as essential services on a par with Government Medical Officers."

6. "This Conference feels that in implementing the Employees State Insurance Scheme panel system should be preferred and if it is decided that service system should be adopted the medical practitioners in the area where the scheme is introduced may be given preference in the employment in paid dispensaries. This is recommended for the reason that as the E. S. I. Scheme is usually introduced in large cities and towns leaving the medical practitioners of the area and appointing additional medical officers by Government will only add to the overcrowding of medical men in large cities and towns thereby preventing freshly qualified doctors from settling down in rural areas."

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